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United States
Department of
Agriculture

Soil
Conservation
Service

Bozeman,
Montana



Montana Water Supply Outlook

May 1, 1987



Foreword

How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are termed reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. Because of the limited space, snow survey measurements are not published in monthly reports. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

| STATE | ADDRESS |
|------------|---|
| Alaska | 201 East 9th Ave., Suite 300, Anchorage, AK 99501-3687 |
| Arizona | 201 East Indianola, Suite 200, Phoenix, AZ 85012 |
| Colorado | 2490 West 26th Ave., Denver, CO 80211 |
| New Mexico | 517 Gold Ave. S.W., Room 3301, Albuquerque, NM 97102 |
| Idaho | 304 North 8th Street, Room 345, Boise, ID 83702 |
| Montana | 10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715 |
| Nevada | 1201 Terminal Way, Room 219, Reno, NV 89502 |
| Oregon | 1220 Southwest 3rd Ave., Room 1640, Portland, OR 97208 |
| Utah | 4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147 |
| Washington | 360 U.S. Court House, Spokane, WA 99201 |
| Wyoming | Federal Building, 100 East "B" Street, Casper, WY 82601 |

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 547, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 95802; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Environment Technical Services Division, 9820 106th St., Edmonton, Alberta T5K 2J6.

Montana Water Supply Outlook

and

Federal – State – Private Cooperative Snow Surveys

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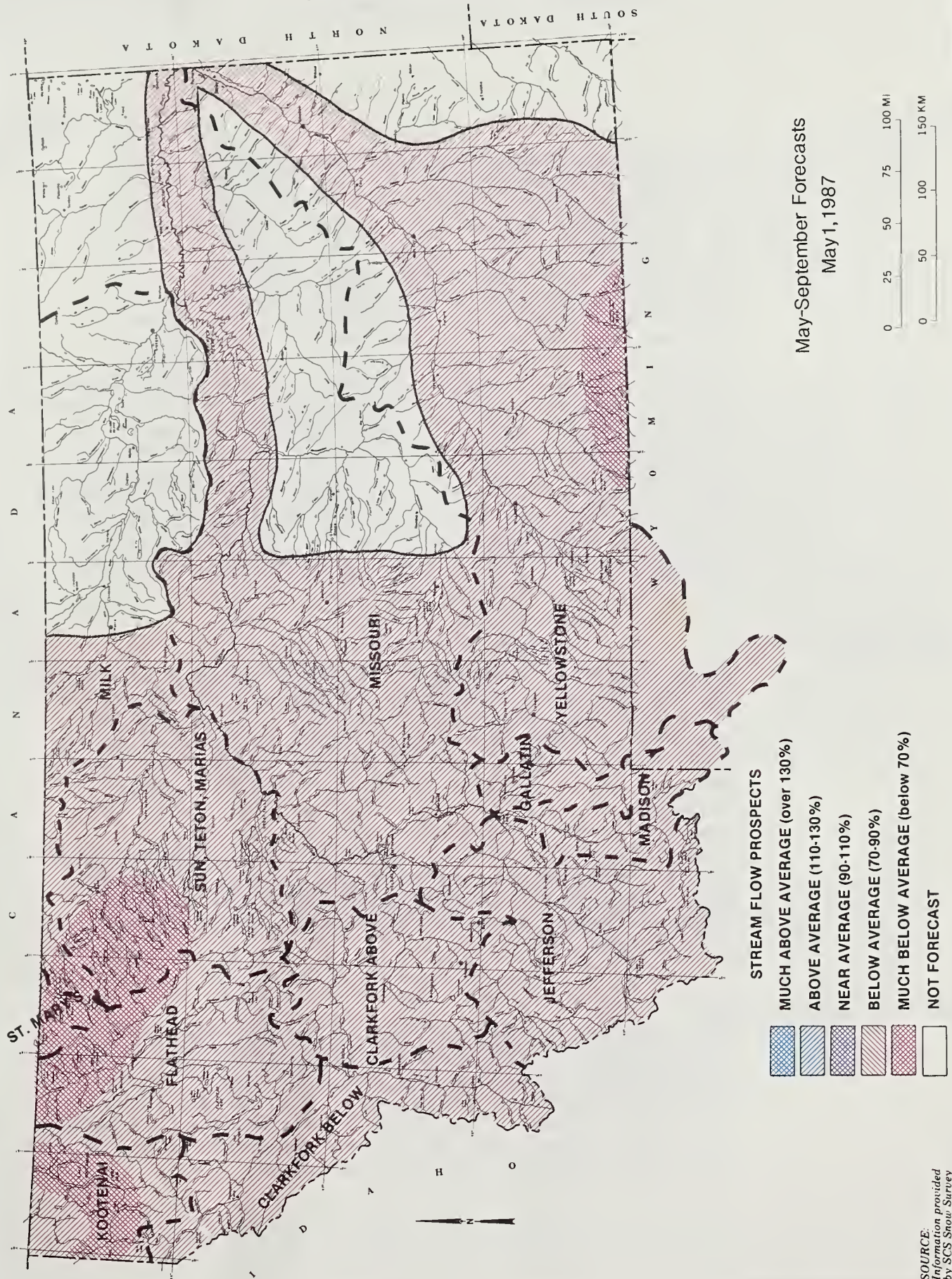
Programs and assistance of the United States Department of Agriculture are available without regard to race, creed, color, sex, age, or national origin.

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STREAMFLOW PROSPECTS FOR MONTANA

Spring and Summer Period



SOURCE:
Information provided
by SCS Snow Survey
Personnel

GENERAL OUTLOOK

SUMMARY:

April precipitation varied from about 25 to 80 percent of average over various drainage basins with the better moisture falling in the northwestern part of the state. Warmer than normal temperatures in April depleted the snowpack to record low levels in many areas. Snowpacks vary from about 10 to 65 percent of average across Montana with the better snowpacks residing in the northwest drainages. Streamflows resulting from earlier than usual snowmelt were above average in most drainages. However, some headwater streams in the upper Clark Fork drainage did show below average runoff as there was not enough low elevation snowpack to generate much streamflow. Warm and dry weather also caused irrigation to begin much earlier than normal. Almost all streams in the state reached their peak snowmelt runoff around the first of May. Those with higher elevation headwaters such as the Yellowstone, Gallatin and Bitterroot are expected to peak before mid-May.

SNOWPACK:

Snowpacks vary from about 50 to 65 percent of average in the Kootenai, Flathead, Marias and St. Mary drainages and generally from 20 to 40 percent of average in other drainages. About 30 percent of the snow courses set a new minimum of record for May 1 surveys while another 30 percent tied previous minimums of no snow on this date. Most areas had below average snowpacks on April 1 and the combination of low April precipitation and above normal temperatures reduced the snowpack to these very low levels. In many drainages, the current snowpack compares with snowpack in early to mid-June in a normal year.

PRECIPITATION:

All mountain areas reported below average April precipitation. The northwestern part of the state had the best moisture but was still in the 65 to 80 percent of average range. All other areas showed only 25 to 35 percent of average precipitation. In many drainages, April was the fifth consecutive month with below average mountain precipitation.

RESERVOIRS:

Nearly all reservoirs in the state have above average storage for this time of year. However, some may not fill this year unless heavy rainfall occurs. Most of those that do not fill are a result of low inflows and releases for irrigation or water rights much earlier than would occur on a "more normal" year. It appears most reservoirs will be empty or nearly empty before the end of the irrigation season.

STREAMFLOW:

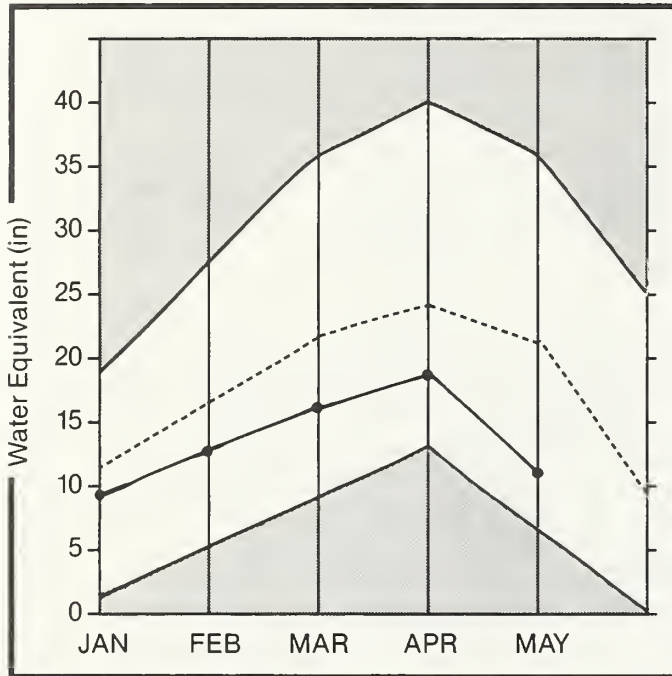
April runoff was above average on most streams. Below average runoff was recorded in central Montana, Clark Fork drainages above Missoula and on the lower Yellowstone River. Much of the season's snowpack was converted to runoff as above normal temperatures persisted most of month. Forecasts for the next five months are for below average runoff from all drainages. With the exception of northwest area streams, this year's runoff is expected to be near record lows. New record lows could be established in many drainages if May and June precipitation is below average. With higher than normal temperatures and deficient moisture, large amounts of water are being diverted for irrigation. Irrigation has started a month to six weeks ahead of normal. Most mountain soils are dry for this time of year and considerable rain will be required to generate any significant runoff.

PEAK SNOWMELT FLOWS:

A tabulation of peak snowmelt flow ranges is shown on page 32. Unless heavy rains occur later this season, the annual peak flows recorded for this season will be some of the lowest on record. Most streams reached their peak snowmelt runoff around the first of May. Some of the peak flows were so low that they were almost unnoticed on some drainages. Streams with higher elevation headwaters such as the Yellowstone, Gallatin and Bitterroot are all expected to have their peak snowmelt runoff before mid-May.

Kootenai Basin

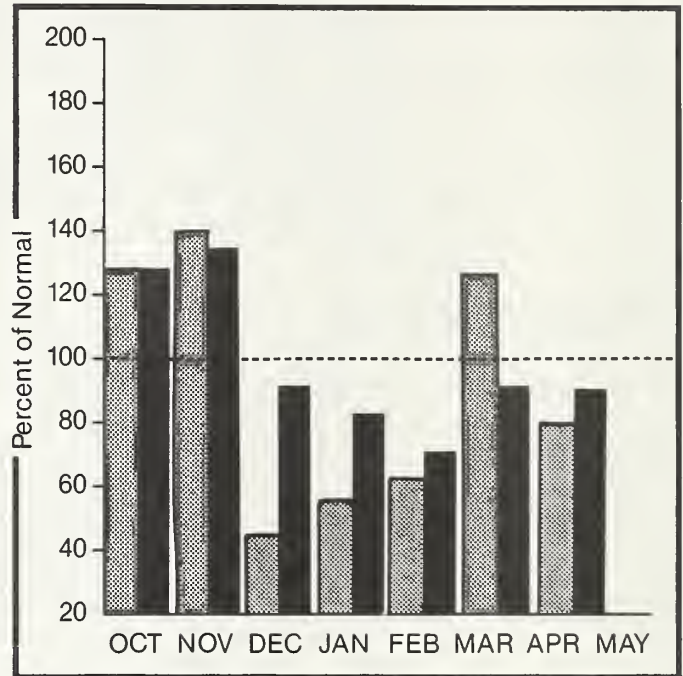
Mountain snowpack* (inches)



*Kootenai in Montana

Maximum ———
Minimum ———
Average - - - -
Current •——•

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation [light bar]
Year to date precipitation [dark bar]

WATER SUPPLY OUTLOOK:

Above normal temperatures and below average mountain precipitation has caused snowpack percentages to decrease. Currently, the water stored in the snowpack is about 60 percent of average. Snow in the British Columbia area is better than in Montana. April runoff was a little above average on Montana tributaries and about 140 percent of average on the Kootenai River. Streamflows for the next 5 months are forecast to be well below average on all drainages. Snowmelt peaks which are well below average have already occurred on Montana tributaries.

For more information contact your local Soil Conservation Service office.

KOOTENAI RIVER BASIN in Montana

STREAMFLOW FORECASTS

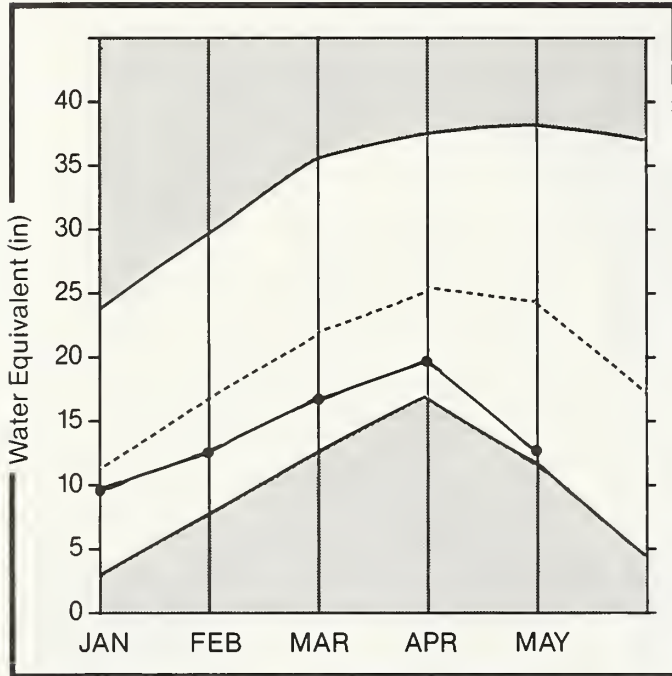
| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|--------------------------------|-----------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| KOOTENAI RIVER blw Libby Dam 2 | MAY-JUL | 5438.0 | 4350.0 | 80 | 5270.0 | 97 | 3430.0 | 63 |
| | MAY-SEP | 6456.0 | 5230.0 | 81 | 6330.0 | 98 | 4130.0 | 64 |
| FISHER RIVER near Libby | MAY-JUL | 173.0 | 105.0 | 61 | 155.0 | 90 | 55.0 | 32 |
| | MAY-SEP | 189.0 | 115.0 | 61 | 170.0 | 90 | 60.0 | 32 |
| YAAK RIVER near Troy | MAY-JUL | 391.0 | 220.0 | 56 | 315.0 | 81 | 125.0 | 32 |
| | MAY-SEP | 414.0 | 230.0 | 56 | 330.0 | 80 | 130.0 | 31 |
| KOOTENAI RIVER at Leonia 2 | MAY-JUL | 6585.0 | 4950.0 | 75 | 6200.0 | 94 | 3700.0 | 56 |
| | MAY-SEP | 7685.0 | 5850.0 | 76 | 7310.0 | 95 | 4390.0 | 57 |

| RESERVOIR STORAGE | | (1000AF) | | | WATERSHED SNOWPACK ANALYSIS | | | |
|-------------------|------------------|-----------------------|-----------|--------|-----------------------------|-------------------|-------------------|---------|
| RESERVOIR | USEABLE CAPACITY | ** USEABLE STORAGE ** | | | WATERSHED | NO. COURSES AVG'D | THIS YEAR AS % OF | |
| | | THIS YEAR | LAST YEAR | AVG. | | | LAST YR. | AVERAGE |
| LAKE KOOCANUSA | 5748.0 | 2712.0 | 2583.0 | 1932.0 | EAST KOOTENAI in B.C. | 28 | 80 | 72 |
| | | | | | KOOTENAI in MONTANA | 32 | 88 | 51 |
| | | | | | KOOTENAI ab BONNERS FERRY | 59 | 82 | 58 |

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
 2 - Corrected for upstream diversions or changes in reservoir storage.
 The average is computed for the 1961-85 base period.

Flathead Basin

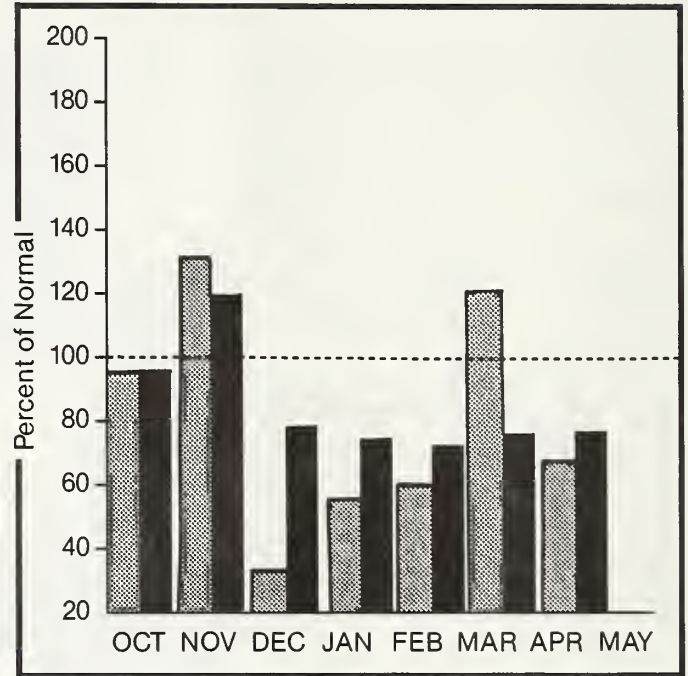
Mountain snowpack* (inches)





*Flathead

Maximum ———
Minimum ———
Average - - - -
Current ● — ●

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation 
Year to date precipitation 

WATER SUPPLY OUTLOOK:

April temperatures were above average while mountain precipitation was only about 65 percent of average. This combination has reduced the snowpack water content to about one-half the amount normally expected at this time of the year. April runoff was well above average. Streamflow forecasts for the remainder of the spring and summer are for well below average volumes. The peak snowmelt runoff occurred in early May and was well below average. Irrigation water supplies from streams not having stored water will be in short supply by early June unless precipitation patterns change toward better moisture conditions.

For more information contact your local Soil Conservation Service office.

FLATHEAD RIVER BASIN

STREAMFLOW FORECASTS

| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|-----------------------------------|-----------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| NF FLATHEAD near Columbia Falls | MAY-JUL | 1528.0 | 1120.0 | 73 | 1380.0 | 90 | 860.0 | 56 |
| | MAY-SEP | 1708.0 | 1280.0 | 75 | 1570.0 | 92 | 990.0 | 58 |
| MF FLATHEAD near West Glacier | MAY-JUL | 1513.0 | 1090.0 | 72 | 1380.0 | 91 | 800.0 | 53 |
| | MAY-SEP | 1669.0 | 1220.0 | 73 | 1520.0 | 91 | 920.0 | 55 |
| SF FLATHEAD near Columbia Falls 1 | MAY-JUL | 1861.0 | 1240.0 | 67 | 1560.0 | 84 | 925.0 | 50 |
| | MAY-SEP | 1998.0 | 1350.0 | 68 | 1670.0 | 84 | 1030.0 | 52 |
| FLATHEAD near Columbia Falls 1 | MAY-JUL | 5016.0 | 3550.0 | 71 | 4400.0 | 88 | 2700.0 | 54 |
| | MAY-SEP | 5518.0 | 3950.0 | 72 | 4830.0 | 88 | 3070.0 | 56 |
| SWAN RIVER near Big Fork | MAY-JUL | 509.0 | 290.0 | 57 | 380.0 | 75 | 200.0 | 39 |
| | MAY-SEP | 595.0 | 345.0 | 58 | 450.0 | 76 | 240.0 | 40 |
| FLATHEAD RIVER near Polson 2 | MAY-JUL | 5834.0 | 4110.0 | 70 | 5040.0 | 86 | 3180.0 | 55 |
| | MAY-SEP | 6398.0 | 4550.0 | 71 | 5700.0 | 89 | 3400.0 | 53 |

| RESERVOIR STORAGE (1000AF) | | | | | WATERSHED SNOWPACK ANALYSIS | | |
|----------------------------|------------------|-----------|-----------|--------|-----------------------------|-------------------|------------------------------------|
| RESERVOIR | USEABLE CAPACITY | THIS YEAR | LAST YEAR | AVG. | WATERSHED | NO. COURSES AVG'D | THIS YEAR AS % OF LAST YR. AVERAGE |
| CAMAS (4) | 45.2 | 30.4 | 36.0 | 28.4 | NORTH FORK FLATHEAD | 15 | 102 63 |
| MISSION VALLEY (8) | 100.0 | 46.4 | 61.5 | 49.7 | MIDDLE FORK FLATHEAD | 11 | 75 52 |
| HUNGRY HORSE | 3451.0 | 2665.0 | 2729.0 | 2040.0 | SOUTH FORK FLATHEAD | 12 | 62 46 |
| FLATHEAD LAKE | 1791.0 | 944.8 | 944.8 | 929.0 | STILLWATER-WHITEFISH | 9 | 86 50 |
| | | | | | SWAN | 10 | 67 51 |
| | | | | | LITTLE BITTERROOT | 6 | 19 8 |
| | | | | | FLATHEAD | 43 | 76 52 |

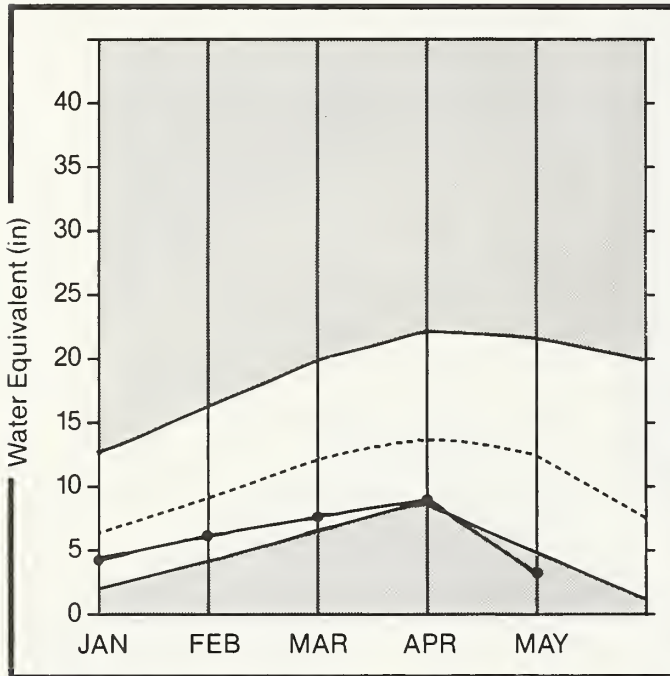
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2 - Corrected for upstream diversions or changes in reservoir storage.





The average is computed for the 1961-85 base period.

Clark Fork Basin above Missoula

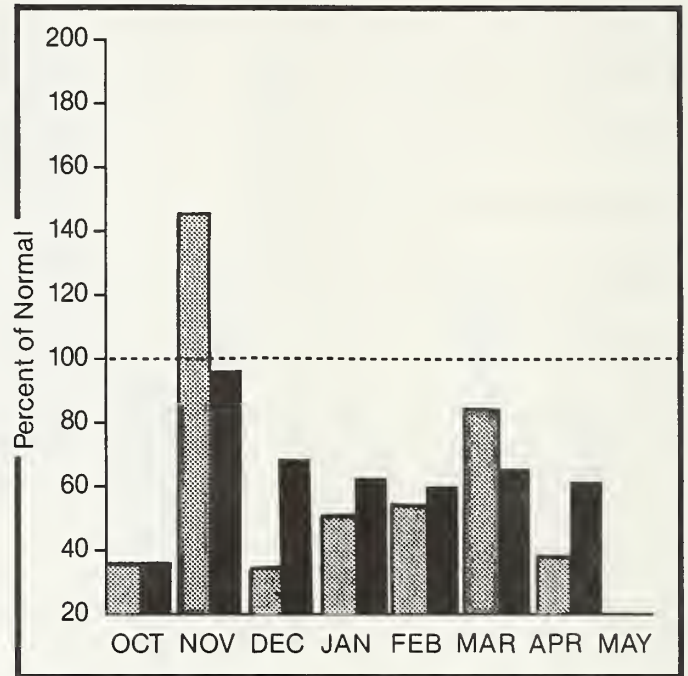
Mountain snowpack* (inches)





*Clark Fork above Missoula

Maximum  Average 
Minimum  Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation  Year to date precipitation 

WATER SUPPLY OUTLOOK:

Below average mountain precipitation and above average temperatures during April have depleted the below average snowpack to even lower levels. This is the fifth consecutive month of below average precipitation. Currently, the water stored in the snowpack is only 30 percent of levels usually expected for this time of the year. Many snow courses reported new record low water contents for May 1. April runoff was below average. Streamflows for the next five months are forecast to be only 50 to 60 percent of average. All streams had reached their snowmelt peak by early May at well below average flows. Shortages of irrigation water are expected to be widespread by early June.

For more information contact your local Soil Conservation Service office.

CLARK FORK RIVER BASIN above Missoula

STREAMFLOW FORECASTS

| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|-----------------------------------|-----------------|-------------------------|---------------------------|---------------------------|------------------------|------------------------|------------------------|------------------------|
| MOULTON RESERVOIR Inflow (MG)2 | MAY-JUN | 197.0 | 109.0 | 55 | 160.0 | 81 | 60.0 | 30 |
| | MAY-JUL | 222.0 | 120.0 | 54 | 175.0 | 79 | 65.0 | 29 |
| WARM SPRINGS at Meyers Dam 2 | MAY-JUL | 35.0 | 18.8 | 54 | 28.0 | 80 | 14.0 | 40 |
| | MAY-SEP | 44.0 | 24.0 | 55 | 35.0 | 80 | 22.0 | 50 |
| FLINT CREEK near Southern Cross 2 | MAY-JUL | 13.4 | 6.1 | 46 | 11.0 | 82 | 4.0 | 30 |
| | MAY-SEP | 16.4 | 7.9 | 48 | 14.0 | 85 | 5.0 | 30 |
| FLINT CREEK below Boulder Creek 2 | MAY-JUL | 54.0 | 27.0 | 50 | 46.0 | 85 | 23.0 | 43 |
| | MAY-SEP | 70.0 | 37.0 | 53 | 62.0 | 89 | 31.0 | 44 |
| LOWER WILLOW CR RES Inflow 2 | MAY-JUL | 12.5 | 3.1 | 25 | 7.0 | 56 | 2.0 | 16 |
| | MAY-SEP | 13.4 | 3.6 | 27 | 8.0 | 60 | 2.0 | 15 |
| M. FK. ROCK CRK near Philipsburg | MAY-JUL | 65.0 | 33.0 | 51 | 48.0 | 74 | 27.0 | 42 |
| | MAY-SEP | 73.0 | 38.0 | 52 | 55.0 | 75 | 30.0 | 41 |
| NEVADA CREEK near Finn | MAY-JUL | 17.0 | 3.5 | 21 | 9.0 | 53 | 3.0 | 18 |
| | MAY-SEP | 18.0 | 3.9 | 22 | 10.0 | 56 | 3.0 | 17 |
| BLACKFOOT RIVER near Bonner | MAY-JUL | 760.0 | 420.0 | 55 | 565.0 | 74 | 275.0 | 36 |
| | MAY-SEP | 854.0 | 440.0 | 52 | 590.0 | 69 | 285.0 | 33 |
| CLARK FORK RIVER above Milltown 2 | MAY-JUL | 597.0 | 360.0 | 60 | 570.0 | 95 | 180.0 | 30 |
| | MAY-SEP | 706.0 | 400.0 | 57 | 650.0 | 92 | 210.0 | 30 |
| CLARK FORK RIVER above Missoula | MAY-JUL | 1357.0 | 700.0 | 52 | 1040.0 | 77 | 360.0 | 27 |
| | MAY-SEP | 1560.0 | 815.0 | 52 | 1200.0 | 77 | 460.0 | 29 |

| RESERVOIR STORAGE | | (1000AF) | | | WATERSHED SNOWPACK ANALYSIS | | | |
|--------------------|------------------|-----------------------|-----------|-----------|-----------------------------|---------------------------|-------------------|------------------------------------|
| RESERVOIR | USEABLE CAPACITY | ** USEABLE STORAGE ** | THIS YEAR | LAST YEAR | AVG. | WATERSHED | NO. COURSES AVG'D | THIS YEAR AS % OF LAST YR. AVERAGE |
| GEORGETOWN LAKE | 31.0 | 29.8 | 27.1 | 24.3 | | CLARK FORK ab BLACKFOOT | 42 | 32 25 |
| LOWER WILLOW CREEK | 4.9 | 2.8 | 5.0 | 3.1 | | BLACKFOOT | 21 | 44 29 |
| NEVADA CREEK | 12.6 | 7.9 | 12.5 | 10.2 | | CLARK FORK above MISSOULA | 57 | 35 27 |

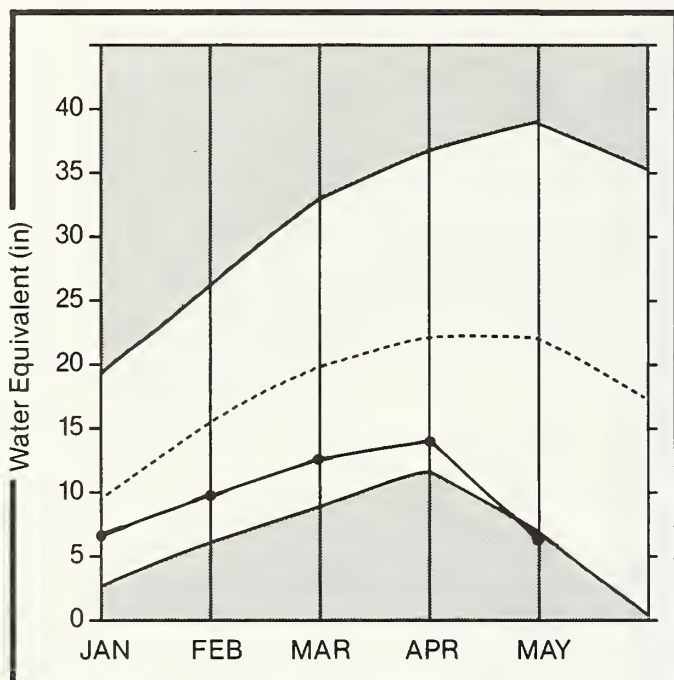
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The average is computed for the 1961-85 base period.

Clark Fork Basin below Missoula

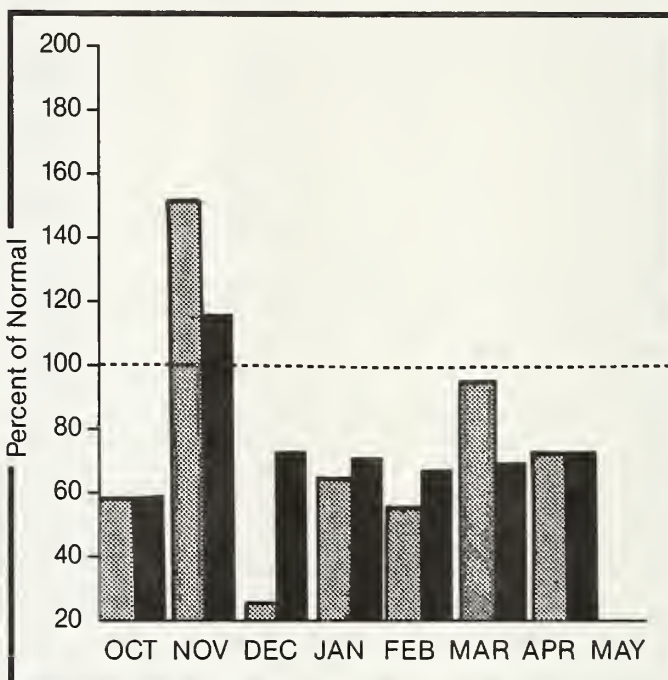
Mountain snowpack* (inches)





*Bitterroot

Maximum ———
Minimum ———
Average - - - -
Current ● ——— ●

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation 
Year to date precipitation 

WATER SUPPLY OUTLOOK:

April mountain precipitation was only about 70 percent of average. Above average temperatures have reduced the snow levels to around 30 to 40 percent of average. Some snow courses in the Bitterroot drainage measured new record low water contents for May 1. Runoff for April was a little above average. Streamflows for the next five months are forecast to be only one-half of their average volumes. The snowmelt peak runoff occurred on most tributaries by early May and at well below average flows. Irrigation water shortages are expected to become quite common by early to mid-June.

For more information contact your local Soil Conservation Service office.

CLARK FORK RIVER BASIN below Missoula

STREAMFLOW FORECASTS

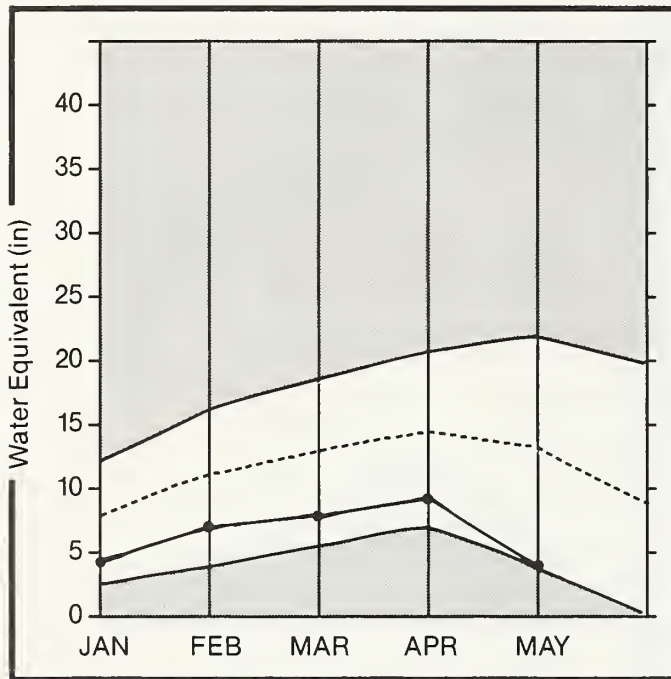
| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|------------------------------------|--------------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| CLARK FORK RIVER above Missoula | MAY-JUL MAY-SEP | 1357.0 1560.0 | 700.0 815.0 | 52 52 | 1040.0 1200.0 | 77 77 | 360.0 460.0 | 27 29 |
| W. F. BITTERROOT RIVER nr Conner 2 | MAY-JUL MAY-SEP | 135.0 156.0 | 65.0 73.0 | 48 47 | 100.0 112.0 | 74 72 | 50.0 60.0 | 37 38 |
| BITTERROOT RIVER near Darby | MAY-JUL MAY-SEP | 470.0 519.0 | 240.0 260.0 | 51 50 | 360.0 380.0 | 77 73 | 120.0 220.0 | 26 42 |
| SKALKAHO CREEK near Hamilton | MAY-JUL MAY-SEP | 48.0 57.0 | 25.0 29.0 | 52 51 | 32.0 36.0 | 67 63 | 18.0 22.0 | 38 39 |
| BURNT FORK CR nr Stevensville 2 | MAY-JUL MAY-SEP | 30.0 35.0 | 16.5 19.1 | 55 55 | 26.0 28.0 | 87 80 | 11.0 13.0 | 37 37 |
| BITTERROOT RIVER at Missoula 2 | MAY-JUL MAY-SEP | 1239.0 1354.0 | 560.0 625.0 | 45 46 | 760.0 840.0 | 61 62 | 360.0 460.0 | 29 34 |
| CLARK FORK RIVER below Missoula | MAY-JUL MAY-SEP | 2586.0 2914.0 | 1300.0 1480.0 | 50 51 | 1770.0 2000.0 | 68 69 | 835.0 955.0 | 32 33 |
| CLARK FORK RIVER at St. Regis | MAY-JUL MAY-SEP | 3379.0 3809.0 | 1640.0 1880.0 | 49 49 | 2320.0 2640.0 | 69 69 | 965.0 1120.0 | 29 29 |
| CLARK FORK RIVER near Plains 2 | MAY-JUL MAY-SEP | 9541.0 10621.0 | 5860.0 6600.0 | 61 62 | 7390.0 8300.0 | 77 78 | 4330.0 4900.0 | 45 46 |
| THOMPSON RIVER near Thompson Falls | MAY-JUL MAY-SEP | 180.0 209.0 | 97.0 154.0 | 54 74 | 140.0 200.0 | 78 96 | 54.0 110.0 | 30 53 |
| PROSPECT CREEK at Thompson Falls | MAY-JUL MAY-SEP | 101.0 110.0 | 61.0 66.0 | 60 60 | 80.0 86.0 | 79 78 | 42.0 46.0 | 42 42 |
| CLARK FORK at Whitehorse Rapids 2 | MAY-JUL MAY-SEP | 10538.0 11764.0 | 6350.0 7180.0 | 60 61 | 7820.0 8710.0 | 74 74 | 4880.0 5650.0 | 46 48 |

| RESERVOIR STORAGE | | (1000AF) | | | WATERSHED SNOWPACK ANALYSIS | | |
|--------------------|------------------|---------------------------|---------------------------|----------------------|-----------------------------|-------------------|------------------------------------|
| RESERVOIR | USEABLE CAPACITY | USEABLE STORAGE THIS YEAR | USEABLE STORAGE LAST YEAR | USEABLE STORAGE AVG. | WATERSHED | NO. COURSES AVG'O | THIS YEAR AS % OF LAST YR. AVERAGE |
| PAINTED ROCKS LAKE | | NO REPORT | | | CLARK FORK above MISSOULA | 57 | 35 27 |
| NOXON RAPIDS | 335.0 | 329.1 | 328.5 | 186.3 | BITTERROOT | 23 | 41 30 |
| COMO | 34.9 | 22.3 | 28.4 | 19.4 | LWR CLARK FK b1w MISSOULA | 23 | 68 44 |
| | | | | | BITTERROOT & LWR C.F. | 44 | 56 39 |
| | | | | | CLARK FORK TOTAL | 95 | 48 34 |
| | | | | | FLATHEAD | 43 | 76 52 |
| | | | | | PENO O'REILLE | 133 | 59 41 |

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
 2 - Corrected for upstream diversions or changes in reservoir storage.
 The average is computed for the 1961-85 base period.

Jefferson Basin

Mountain snowpack* (inches)

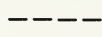


*Jefferson

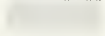
Maximum



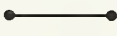
Average



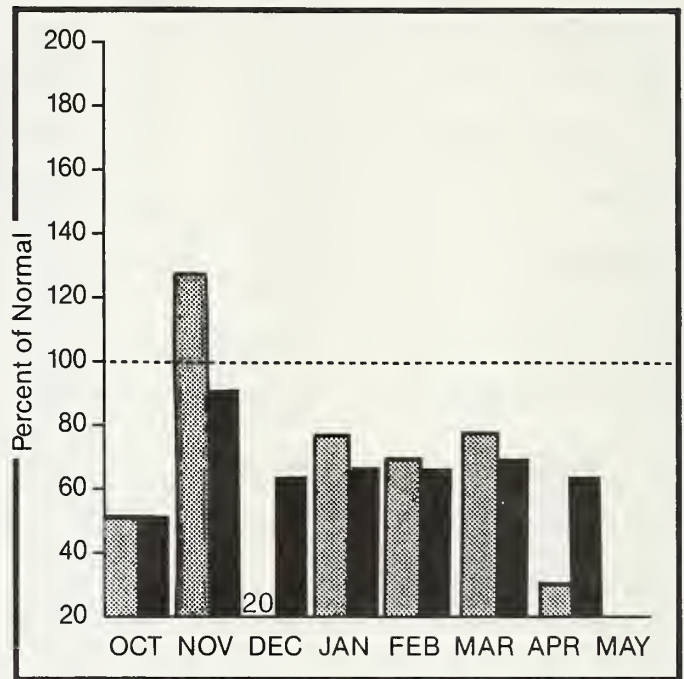
Minimum



Current



Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation



Year to date precipitation



WATER SUPPLY OUTLOOK:

The snowpack is about one-third of average for this time of year. This is due to above average temperatures and mountain precipitation of only about 30 percent of average for April. This is the fifth consecutive month of below average precipitation. Some snow courses reported record low water contents for May 1. Runoff in April was near to a little above average. Streamflows for the next five months are forecast to be in the 50 to 70 percent of average range. Streamflows reached their peak snowmelt runoff near the end of April and in early May with well below average flows. On streams not having stored water, irrigation water shortages could become widespread by early to mid-June.

For more information contact your local Soil Conservation Service office.

JEFFERSON RIVER BASIN

STREAMFLOW FORECASTS

| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|--------------------------------|--------------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| RED ROCK RIVER near Monida 2 | MAY-JUL MAY-SEP | 80.0 89.0 | 36.0 41.0 | 45 46 | 69.0 78.0 | 86 88 | 16.0 18.0 | 20 20 |
| BEAVERHEAD RIVER near Grant 2 | MAY-JUL MAY-SEP | 109.0 133.0 | 40.0 49.0 | 37 37 | 84.0 102.0 | 77 77 | 20.0 28.0 | 18 21 |
| BEAVERHEAD RIVER at Barratts 2 | MAY-JUL MAY-SEP | 143.0 175.0 | 59.0 72.0 | 41 41 | 116.0 142.0 | 81 81 | 7.0 10.0 | 5 6 |
| RUBY RIVER near Alder | MAY-JUL MAY-SEP | 75.0 92.0 | 52.0 64.0 | 69 70 | 69.0 86.0 | 92 93 | 36.0 42.0 | 48 46 |
| BIG HOLE RIVER near Melrose | MAY-JUL MAY-SEP | 612.0 673.0 | 295.0 325.0 | 48 48 | 480.0 530.0 | 78 79 | 195.0 215.0 | 32 32 |
| WILLOW CREEK near Harrison | MAY-JUL MAY-SEP | 16.2 18.6 | 9.6 11.0 | 59 59 | 16.0 18.0 | 99 97 | 3.0 4.0 | 19 22 |

| RESERVOIR STORAGE (1000AF) | | | | | WATERSHED SNOWPACK ANALYSIS | | | |
|----------------------------|------------------|------------------------------------|-----------|-------|-----------------------------|----------------------|-------------------------------|-----------------|
| RESERVOIR | USEABLE CAPACITY | ** USEABLE STORAGE ** THIS YEAR | LAST YEAR | AVG. | WATERSHED | NO. COURSES AVG'D | THIS YEAR AS % OF LAST YR. | % OF AVERAGE |
| LIMA | 84.0 | 58.8 | 67.2 | 56.5 | BEAVERHEAD | 29 | 29 | 28 |
| CLARK CANYON | 255.6 | 168.5 | 164.8 | 163.2 | RUBY | 13 | 42 | 36 |
| RUBY RIVER | 38.8 | 40.4 | 40.1 | 35.6 | BIGHOLE | 28 | 35 | 31 |
| | | | | | BOULOER | 14 | 36 | 24 |
| | | | | | JEFFERSON | 66 | 33 | 29 |

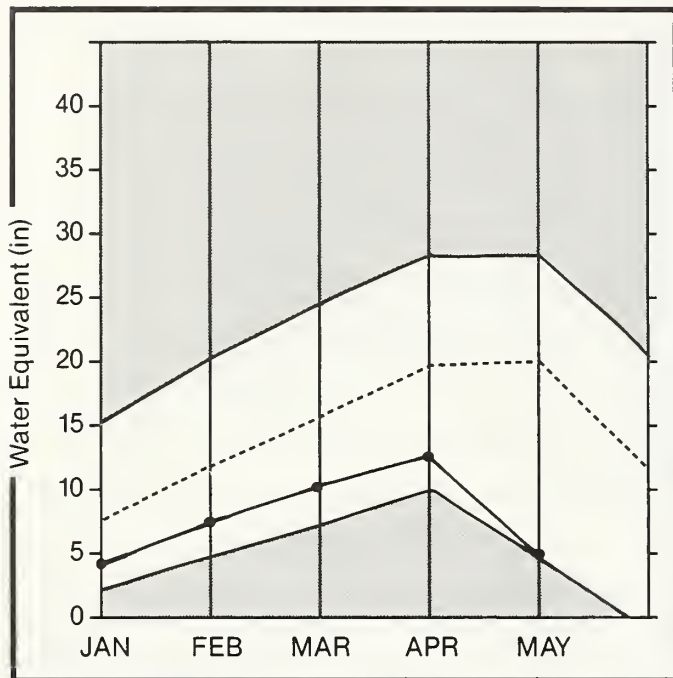
1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

The average is computed for the 1961-85 base period.

Madison Basin

Mountain snowpack* (inches)

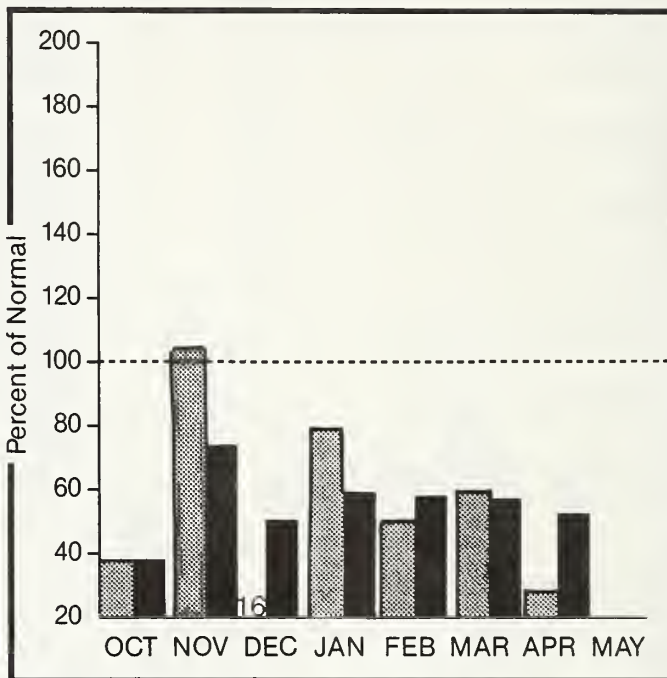


*Madison

Maximum —
Minimum —

Average ----
Current ●—●

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Mountain precipitation for April was only about 30 percent of average. This is the fifth consecutive month of below average precipitation. Temperatures were well above average during April and reduced the season's low snowpack levels even further. Currently, the water stored in the snowpack is only about 15 percent of average above Hebgen and about 30 percent in the Madison, Gravelly and Tobacco Root ranges. New record low water contents for May 1 were recorded at some snow courses. Runoff in April was above average in the upper basin and a little below average downstream from Hebgen. Streamflow for the next five months is forecast to be in the 60 to 70 percent of average range. Peak snowmelt runoff occurred around May 1 and was well below average.

For more information contact your local Soil Conservation Service office.

MADISON RIVER BASIN

STREAMFLOW FORECASTS

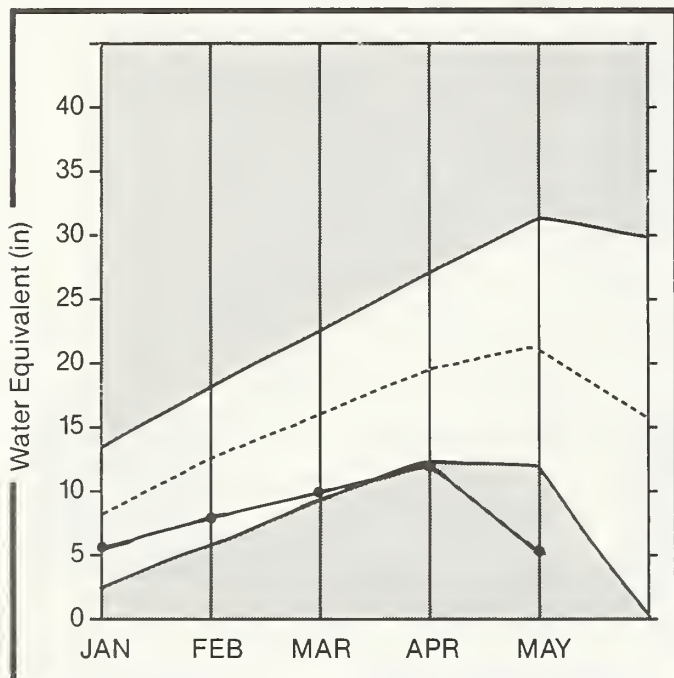
| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|---------------------------------|-----------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| MADISON RIVER near Grayling 2 | MAY-JUL | 333.0 | 230.0 | 69 | 290.0 | 87 | 190.0 | 57 |
| | MAY-SEP | 443.0 | 315.0 | 71 | 380.0 | 86 | 250.0 | 56 |
| MADISON RIVER near McAllister 2 | MAY-JUL | 577.0 | 350.0 | 61 | 505.0 | 88 | 325.0 | 56 |
| | MAY-SEP | 753.0 | 480.0 | 64 | 645.0 | 86 | 425.0 | 56 |

| RESERVOIR STORAGE | | (1000AF) | | | WATERSHED SNOWPACK ANALYSIS | | | |
|-------------------|------------------|-----------------------|-----------|-----------|-----------------------------|----------------------|-------------------|------------------------------------|
| RESERVOIR | USEABLE CAPACITY | ** USEABLE STORAGE ** | THIS YEAR | LAST YEAR | AVG. | WATERSHED | NO. COURSES AVG'D | THIS YEAR AS % OF LAST YR. AVERAGE |
| ENNIS LAKE | 41.0 | 27.4 | 33.0 | 35.7 | | MADISON above HEBGEN | 11 | 11 12 |
| HEBGEN LAKE | 377.5 | 316.3 | 289.3 | 236.2 | | LOWER MADISON | 21 | 34 29 |
| | | | | | | MADISON | 32 | 25 23 |

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
 2 - Corrected for upstream diversions or changes in reservoir storage.
 The average is computed for the 1961-85 base period.

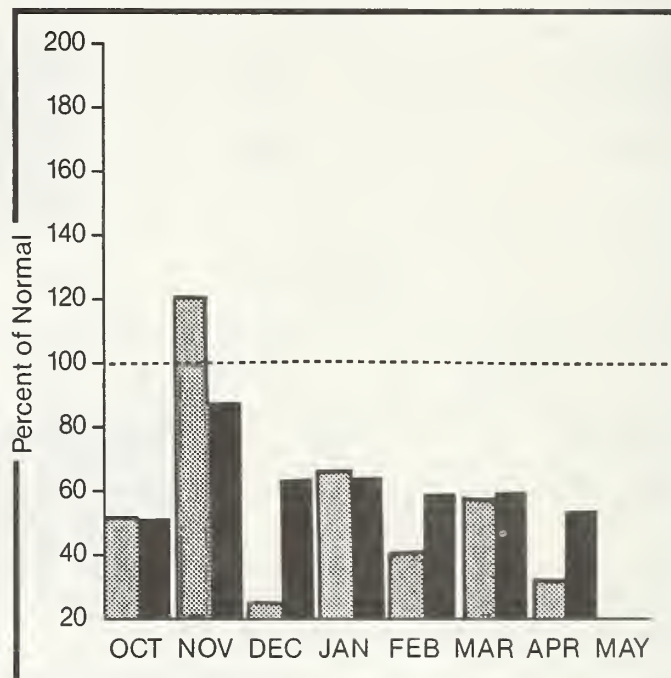
Gallatin Basin

Mountain snowpack* (inches)






*Gallatin



Precipitation* (percent of normal)



*Based on selected stations

Maximum 
Minimum 

Average 
Current 

Monthly precipitation  Year to date precipitation 

WATER SUPPLY OUTLOOK:

April temperatures were well above average. April precipitation was about 30 percent of average which makes five consecutive months of below average moisture. Snowpacks in the Gallatin vary from about 22 to 33 percent of average. Some snow courses reported new record low water contents for May 1. April runoff was above average in the upper drainages but below average at Logan due to irrigation withdrawals. Streamflow for the next five months is forecast to be well below average. It is expected the Gallatin River and Hyalite Creek will reach their snowmelt peak before mid-May. The East Gallatin has already peaked. Shortages of irrigation water are expected to become widespread by early June.

For more information contact your local Soil Conservation Service office.

GALLATIN RIVER BASIN

STREAMFLOW FORECASTS

| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|------------------------------------|-----------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| GALLATIN RIVER near Gateway | MAY-JUL | 430.0 | 235.0 | 55 | 300.0 | 70 | 170.0 | 40 |
| | MAY-SEP | 510.0 | 290.0 | 57 | 380.0 | 75 | 200.0 | 39 |
| E & W FK. HYALITE CRK nr Bozeman 2 | MAY-JUL | 23.0 | 15.0 | 65 | 18.0 | 78 | 12.0 | 52 |
| | MAY-SEP | 27.0 | 18.3 | 68 | 23.0 | 85 | 14.0 | 52 |
| HYALITE CREEK near Bozeman 2 | MAY-JUL | 35.0 | 21.0 | 60 | 30.0 | 86 | 14.0 | 40 |
| | MAY-SEP | 41.0 | 25.0 | 61 | 34.0 | 83 | 17.0 | 41 |
| GALLATIN RIVER at Logan | MAY-JUL | 458.0 | 140.0 | 31 | 270.0 | 59 | 48.0 | 10 |
| | MAY-SEP | 546.0 | 175.0 | 32 | 320.0 | 59 | 58.0 | 11 |

RESERVOIR STORAGE

(1000AF)

WATERSHED SNOWPACK ANALYSIS

| RESERVOIR | USEABLE CAPACITY | ** USEABLE STORAGE ** THIS YEAR | LAST YEAR | AVG. | WATERSHED | NO. COURSES AVG'D | THIS YEAR AS % OF LAST YR. | % OF AVERAGE |
|--------------|------------------|------------------------------------|-----------|------|----------------|----------------------|-------------------------------|-----------------|
| MIDDLE CREEK | 8.0 | 7.0 | 6.8 | 4.4 | UPPER GALLATIN | 15 | 39 | 33 |
| | | | | | EAST GALLATIN | 12 | 34 | 22 |
| | | | | | GALLATIN | 24 | 35 | 25 |

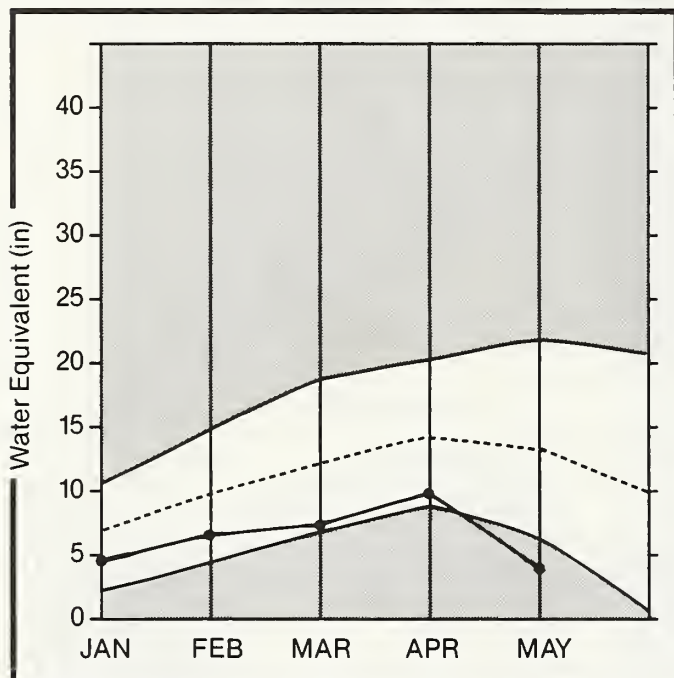
1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

The average is computed for the 1961-85 base period.

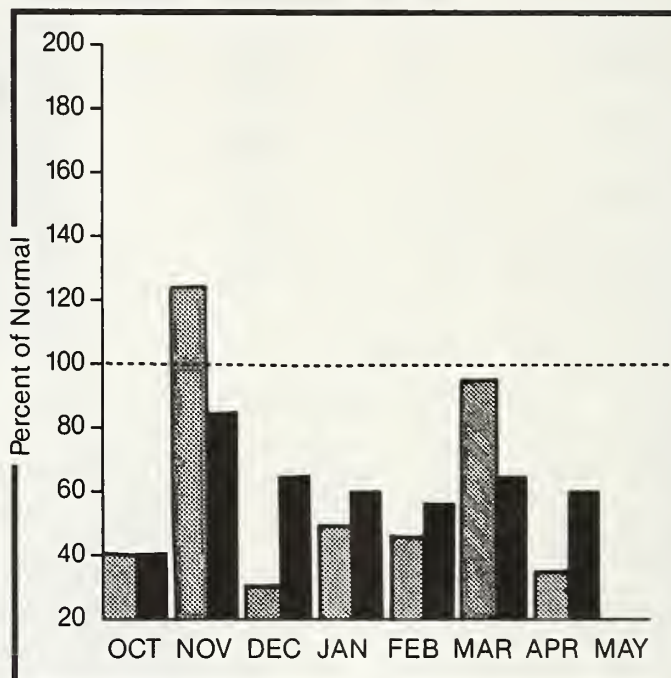
Missouri Basin

Mountain snowpack* (inches)



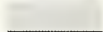
*Missouri Toston to Fort Peck

Precipitation* (percent of normal)

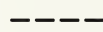


*Based on selected stations

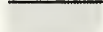
Maximum



Average



Minimum



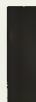
Current



Monthly precipitation



Year to date precipitation



WATER SUPPLY OUTLOOK:

April precipitation was only about one-third of average in the mountains. Above normal temperatures in April created considerable melt of the already below average snowpack. The amount of water stored in the snow is only about 20 to 25 percent of average. Some snow courses reported new record low water contents for May 1. Runoff in April was generally below average on the smaller streams and above average in the Missouri drainage. Streamflows for the next five months are forecast to be well below average. Most streams reached their peak snowmelt runoff by early May at well below average flows. On streams not having reservoir storage, shortages of irrigation water are expected to be quite common by late May.

For more information contact your local Soil Conservation Service office.

MISSOURI RIVER BASIN

STREAMFLOW FORECASTS

| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|------------------------------------|--------------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| MISSOURI RIVER at Toston 2 | MAY-JUL MAY-SEP | 1890.0 2230.0 | 810.0 1010.0 | 43 45 | 1510.0 1790.0 | 80 80 | 660.0 780.0 | 35 35 |
| SHEEP CREEK nr White Sulphur Spgs. | MAY-JUL MAY-SEP | 17.1 20.0 | 7.0 8.6 | 41 43 | 13.0 15.0 | 76 75 | 6.0 7.0 | 35 35 |
| BELT CREEK near Monarch | MAY-JUL MAY-SEP | 114.0 126.0 | 52.0 63.0 | 46 50 | 90.0 103.0 | 79 82 | 30.0 34.0 | 26 27 |
| MISSOURI RIVER at Fort Benton 2 | MAY-JUL MAY-SEP | 2930.0 3450.0 | 1350.0 1670.0 | 46 48 | 2280.0 2690.0 | 78 78 | 1020.0 1210.0 | 35 35 |
| MISSOURI RIVER at Virgelle 2 | MAY-JUL MAY-SEP | 3350.0 3900.0 | 1740.0 2120.0 | 52 54 | 2850.0 3320.0 | 85 85 | 1210.0 1400.0 | 36 36 |
| MISSOURI RIVER near Landusky 2 | MAY-JUL MAY-SEP | 3650.0 4240.0 | 1940.0 2340.0 | 53 55 | 3180.0 3690.0 | 87 87 | 1320.0 1530.0 | 36 36 |
| N.F. MUSSELSHELL near Delpine | MAY-JUL MAY-SEP | 4.0 4.9 | 1.0 1.5 | 25 31 | 3.0 4.0 | 75 82 | 0.0 0.0 | 0 0 |
| S.F. MUSSELSHELL above Martinsdale | MAY-JUL MAY-SEP | 51.0 55.0 | 18.0 19.1 | 35 35 | 38.0 42.0 | 75 76 | 5.0 5.0 | 10 9 |
| MISSOURI RIVER below Fort Peck 2 | MAY-JUL MAY-SEP | 3560.0 4100.0 | 1790.0 2150.0 | 50 52 | 3130.0 3610.0 | 88 88 | 1140.0 1310.0 | 32 32 |
| LAKE SAKAKAWEA Inflow 2 | MAY-JUL MAY-SEP | 9210.0 10380.0 | 5620.0 6530.0 | 61 63 | 8470.0 9570.0 | 92 92 | 3680.0 4160.0 | 40 40 |

| RESERVOIR STORAGE (1000AF) | | | | | WATERSHED SNOWPACK ANALYSIS | | |
|----------------------------|------------------|---------------------------------|-----------|--------|-----------------------------|-------------------|------------------------------------|
| RESERVOIR | USEABLE CAPACITY | ** USEABLE STORAGE ** THIS YEAR | LAST YEAR | AVG. | WATERSHED | NO. COURSES AVG'O | THIS YEAR AS % OF LAST YR. AVERAGE |
| CANYON FERRY LAKE | 2043.0 | 1573.0 | 1540.0 | 1505.0 | MISSOURI HEADWATERS | 105 | 30 26 |
| HELENA VALLEY | 9.2 | 7.8 | 8.4 | 7.5 | WEST SIDE MISSOURI | 11 | 44 27 |
| LAKE HELENA | 10.4 | 10.9 | 10.9 | 10.0 | SMITH-BELT | 11 | 28 22 |
| HAUSER & HELENA | 61.9 | 63.1 | 63.0 | 60.0 | MISSOURI MAINSTEM | 22 | 34 24 |
| HOLTER LAKE | 81.9 | 80.5 | 80.5 | 72.6 | SUN-TETON-MARIAS | 17 | 68 43 |
| SMITH RIVER | 10.6 | 9.8 | 10.5 | 9.4 | JUDITH-MUSSELSHELL | 17 | 28 19 |
| NEMLAN CREEK | 12.4 | 10.5 | 11.2 | 9.7 | MISSOURI above FORT PECK | 146 | 34 27 |
| BAIR | 7.0 | 7.0 | 4.3 | 6.0 | MILK HEADWATERS | 4 | 79 29 |
| MARTINSDALE | 23.1 | 15.1 | 19.7 | 12.3 | BEAR PAW | 7 | 0 11 |
| DEADMAN'S BASIN | 72.2 | 63.3 | 44.4 | 56.6 | MILK RIVER | 11 | 85 26 |
| FORT PECK LAKE* | 18.9 | 16.1 | 14.4 | 15.3 | MISSOURI in MONTANA | 155 | 34 27 |
| | | | | | MISSOURI blw YELLOWSTONE | 259 | 37 33 |

*Million Acre Feet

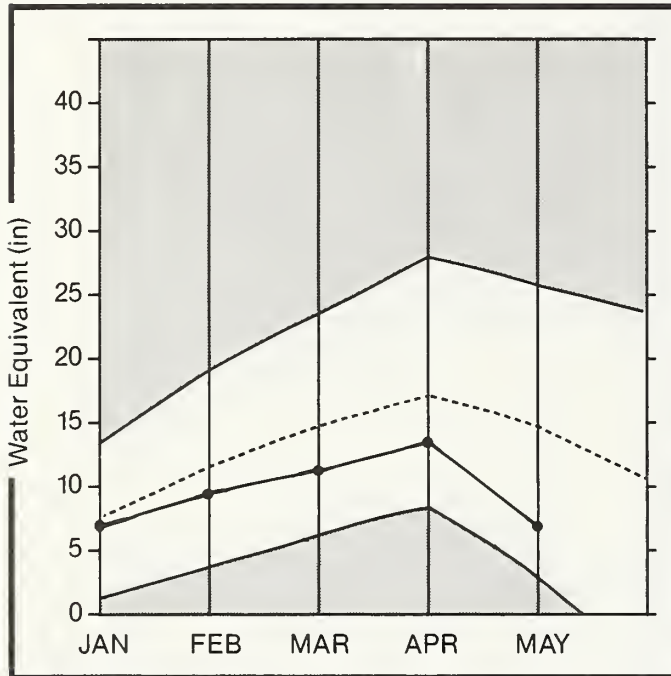
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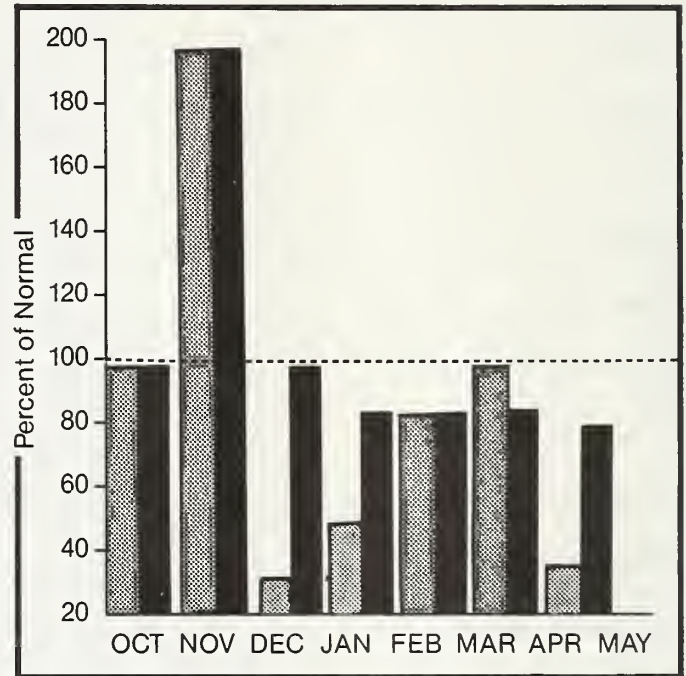
Sun, Teton and Marias Basins

Mountain snowpack* (inches)




*Sun-Teton-Marias

Precipitation* (percent of normal)



*Based on selected stations

Maximum ———
Minimum ———
Average - - - -
Current ● ——— ●

Monthly precipitation 
Year to date precipitation 

WATER SUPPLY OUTLOOK:

Mountain precipitation in April was only about 30 percent of average. Above average temperatures have reduced the snowpack levels to about 30 percent of average in the Sun and Teton drainages and about 60 percent of average in the Birch, Two Medicine, Badger and Cut Bank Creek headwaters. April runoff was above average. Streamflow for the next five months is forecast to be around 65 to 85 percent of average. Most streams reached their peak snowmelt runoff by early May at well below average flows. Water stored in irrigation reservoirs will help provide much needed supplies of water in the summer.

For more information contact your local Soil Conservation Service office.

SUN-TETON-MARIAS RIVER BASINS

STREAMFLOW FORECASTS

| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|------------------------------------|-----------------|-------------------------|---------------------------|---------------------------|------------------------|------------------------|------------------------|------------------------|
| SUN RIVER at Gibson Dam 2 | MAY-JUL | 462.0 | 310.0 | 67 | 425.0 | 92 | 195.0 | 42 |
| | MAY-SEP | 511.0 | 350.0 | 68 | 475.0 | 93 | 225.0 | 44 |
| TWO MEDICINE CREEK near Browning 2 | MAY-JUL | 197.0 | 155.0 | 79 | 230.0 | 117 | 80.0 | 41 |
| | MAY-SEP | 210.0 | 165.0 | 79 | 240.0 | 114 | 90.0 | 43 |
| BADGER CREEK near Browning | MAY-JUL | 97.0 | 80.0 | 82 | 117.0 | 121 | 43.0 | 44 |
| | MAY-SEP | 114.0 | 95.0 | 83 | 135.0 | 118 | 55.0 | 48 |
| SWIFT RESERVOIR Inflow nr Dupuyer | MAY-JUL | 64.0 | 53.0 | 83 | 77.0 | 120 | 29.0 | 45 |
| | MAY-SEP | 76.0 | 62.0 | 82 | 89.0 | 117 | 35.0 | 46 |
| CUT BANK CREEK at Cut Bank | MAY-JUL | 79.0 | 67.0 | 85 | 97.0 | 123 | 37.0 | 47 |
| | MAY-SEP | 88.0 | 75.0 | 85 | 107.0 | 122 | 43.0 | 49 |
| MARIAS RIVER near Shelby | MAY-JUL | 412.0 | 290.0 | 70 | 445.0 | 108 | 133.0 | 32 |
| | MAY-SEP | 436.0 | 310.0 | 71 | 465.0 | 107 | 153.0 | 35 |

| RESERVOIR STORAGE (1000AF) | | | | | WATERSHED SNOWPACK ANALYSIS | | | |
|----------------------------|------------------|------------------------------------|-----------|-------|-----------------------------|----------------------|---------------------------------------|----|
| RESERVOIR | USEABLE CAPACITY | ** USEABLE STORAGE ** THIS YEAR | LAST YEAR | AVG. | WATERSHED | NO. COURSES AVG'D | THIS YEAR AS % OF LAST YR. AVERAGE | |
| GIBSON | 99.1 | 84.9 | 78.6 | 53.9 | SUN-TETON | 12 | 51 | 28 |
| PISHKUN | 32.0 | 27.6 | 21.9 | 26.6 | MARIAS | 6 | 80 | 57 |
| WILLOW CREEK | 32.2 | 29.3 | 31.2 | 23.7 | SUN-TETON-MARIAS | 17 | 68 | 43 |
| LOWER TWO MEDICINE LAKE | 11.9 | 12.2 | --- | 10.6 | | | | |
| FOUR HORNS LAKE | 19.2 | 12.8 | --- | 12.8 | | | | |
| SWIFT | 30.0 | 24.9 | 14.0 | 16.1 | | | | |
| LAKE FRANCES | 112.0 | 94.1 | 103.8 | 74.6 | | | | |
| LAKE ELWELL (TIBER) | 1347.0 | 748.4 | 813.1 | 582.5 | | | | |

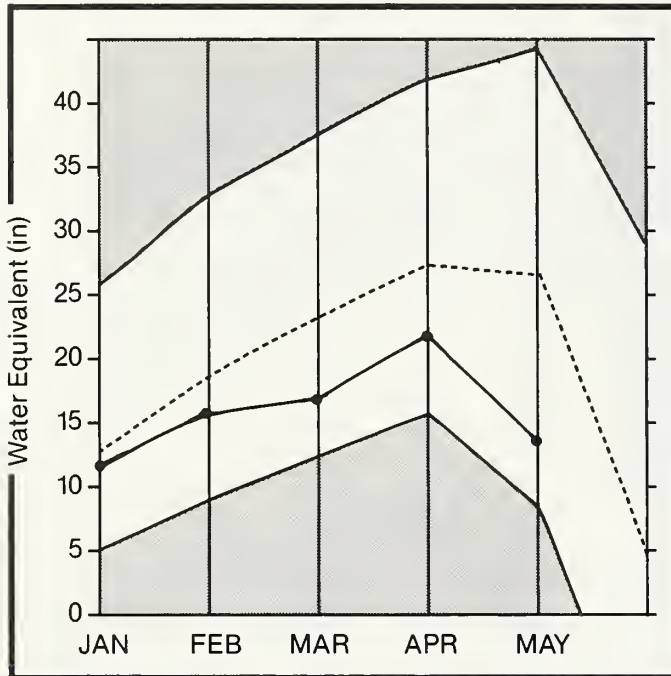
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The average is computed for the 1961-85 base period.



St. Mary and Milk Basins

Mountain snowpack* (inches)

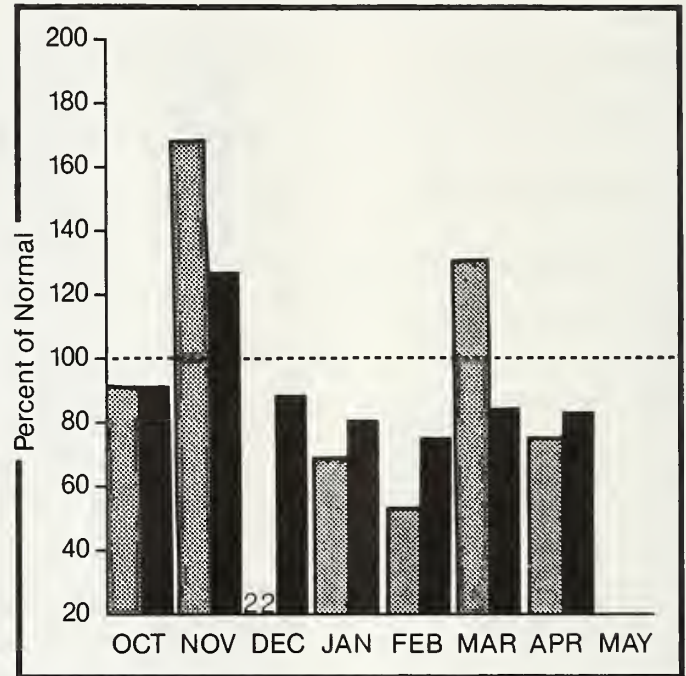


* St. Mary



Maximum 
Minimum 

Average 
Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation  Year to date precipitation 

WATER SUPPLY OUTLOOK:

April precipitation in the mountains was about 75 percent of average. Above normal temperatures reduced the snowpack levels to about one-half of average in the St. Mary and one-quarter of average in the Milk drainages. April runoff was well above average on the St. Mary River and below average in the Milk River drainage. Forecasts of streamflow for the next five months are around 75 percent of average on the St. Mary. Runoff on the Milk River without St. Mary Canal is expected to be well below average.

For more information contact your local Soil Conservation Service office.

ST. MARY and MILK RIVER BASINS

STREAMFLOW FORECASTS

| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|-----------------------------------|-----------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| SWIFTCURRENT CREEK at Sherburne 2 | MAY-JUL | 101.0 | 77.0 | 76 | 99.0 | 98 | 55.0 | 54 |
| | MAY-SEP | 119.0 | 90.0 | 76 | 119.0 | 100 | 61.0 | 51 |
| ST. MARY'S RIVER near Babb 2 | MAY-JUL | 383.0 | 290.0 | 76 | 360.0 | 94 | 220.0 | 57 |
| | MAY-SEP | 453.0 | 350.0 | 77 | 430.0 | 95 | 270.0 | 60 |
| MILK RIVER at Eastern Crossing | MAY-SEP | 51.0 | 28.0 | 55 | | | | |
| MILK RIVER at Eastern Crossing 2 | MAY-SEP | 204.0 | 215.0 | 105 | | | | |

| RESERVOIR STORAGE | | | | | (1000AF) | WATERSHED SNOWPACK ANALYSIS | | | |
|-------------------|---------------------|-----------------------|--------------|------|-------------------------|-----------------------------|-------------------|---------|--|
| RESERVOIR | USEABLE CAPACITY | ** USEABLE STORAGE ** | | | WATERSHED | NO. COURSES AVG '0 | THIS YEAR AS % OF | | |
| | | THIS YEAR | LAST YEAR | AVG. | | | LAST YR. | AVERAGE | |
| LAKE SHERBURNE | 64.3 | 29.1 | 4.9 | 19.6 | MILK HEADWATERS | 4 | 79 | 29 | |
| FRESNO | 127.0 | 105.3 | 104.6 | 96.5 | BEAR PAW | 7 | 0 | 11 | |
| BEAVER CREEK | 3.5 | 3.3 | 3.3 | 2.6 | MILK RIVER | 11 | 85 | 26 | |
| NELSON | 66.8 | 54.7 | 59.9 | 42.0 | ST. MARY | 11 | 106 | 52 | |
| | | | | | ST. MARY and MILK | 18 | 107 | 51 | |
| | | | | | BOW RIVER in ALBERTA | 14 | 78 | 96 | |
| | | | | | OLDMAN RIVER in ALBERTA | 3 | 121 | 85 | |

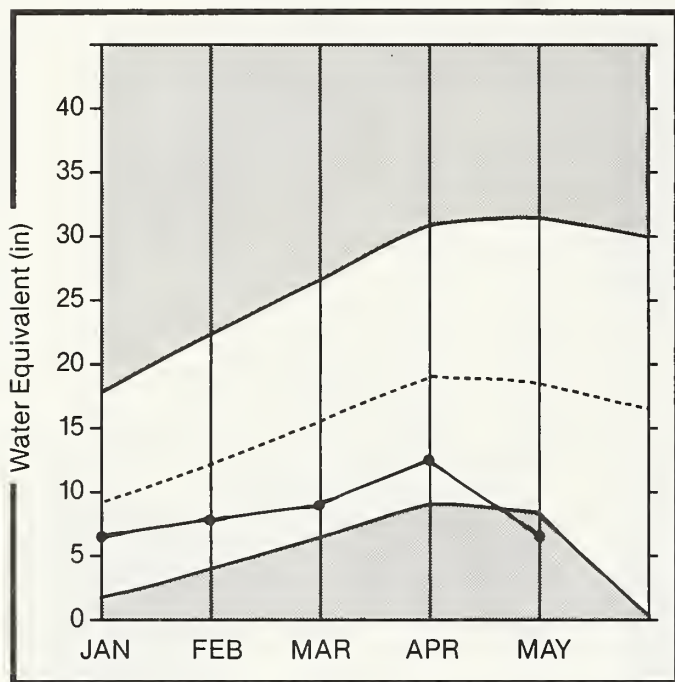
1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

The average is computed for the 1961-85 base period.

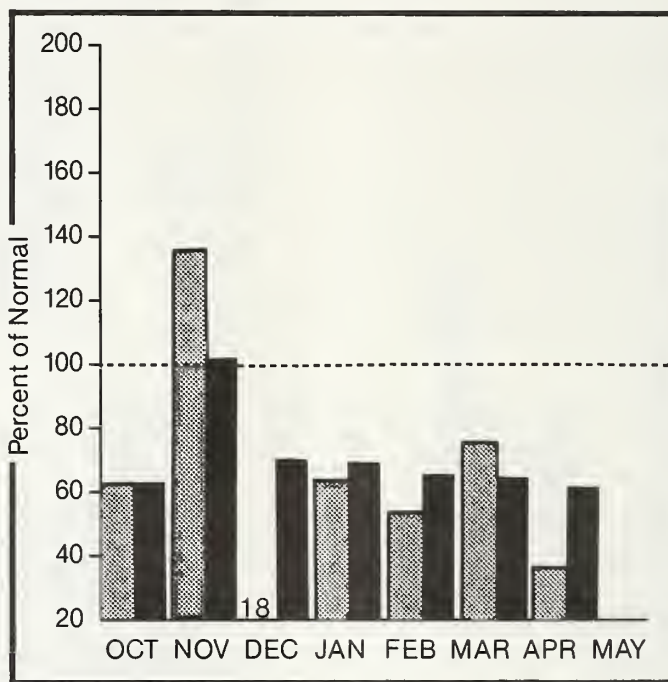
Yellowstone Basin

Mountain snowpack* (inches)



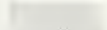
*Yellowstone above Big Horn

Precipitation* (percent of normal)



*Based on selected stations

Maximum



Average



Minimum



Current



Monthly precipitation



Year to date precipitation



WATER SUPPLY OUTLOOK:

April precipitation in the mountains was only about 35 percent of average stretching the string of months with below average moisture to five. Above average temperatures in April have reduced the snowpack levels to less than one-half of average. Many snow courses reported new record low water contents for May 1. Runoff in April was above average. Streamflow for the next five months is forecast to be in the range of 55 to 70 percent of average. The peak snowmelt runoff is expected to occur by mid-May at much below average flows. Irrigation water is expected to become short by late May or early June on Yellowstone River tributaries.

For more information contact your local Soil Conservation Service office.

YELLOWSTONE RIVER BASIN

STREAMFLOW FORECASTS

| FORECAST POINT | FORECAST PERIOD | 25 YR. AVG. (1000AF) | MOST PROBABLE (1000AF) | MOST PROBABLE (% AVG.) | REAS. MAX. (1000AF) | REAS. MAX. (% AVG.) | REAS. MIN. (1000AF) | REAS. MIN. (% AVG.) |
|-----------------------------------|-----------------|----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| YELLOWSTONE at Lake Outlet | MAY-SEP | 784.0 | 495.0 | 63 | 590.0 | 75 | 400.0 | 51 |
| YELLOWSTONE at Corwin Springs | MAY-JUL | 1570.0 | 900.0 | 57 | 1150.0 | 73 | 815.0 | 52 |
| | MAY-SEP | 1910.0 | 1090.0 | 57 | 1400.0 | 73 | 990.0 | 52 |
| YELLOWSTONE near Livingston | MAY-JUL | 1810.0 | 1000.0 | 55 | 1290.0 | 71 | 975.0 | 54 |
| | MAY-SEP | 2220.0 | 1250.0 | 56 | 1610.0 | 73 | 1230.0 | 55 |
| BOULOER RIVER at Big Timber | MAY-JUL | 340.0 | 210.0 | 62 | 280.0 | 82 | 190.0 | 56 |
| | MAY-SEP | 372.0 | 230.0 | 62 | 310.0 | 83 | 205.0 | 55 |
| STILLWATER RIVER nr Absarokee 2 | MAY-JUL | 501.0 | 315.0 | 63 | 445.0 | 89 | 260.0 | 52 |
| | MAY-SEP | 602.0 | 385.0 | 64 | 515.0 | 86 | 310.0 | 51 |
| CLARKS FORK RIVER near Belfry | MAY-JUL | 519.0 | 360.0 | 69 | 460.0 | 89 | 260.0 | 50 |
| | MAY-SEP | 582.0 | 410.0 | 70 | 520.0 | 89 | 300.0 | 52 |
| COONEY RESERVOIR Inflow | MAY-JUL | 41.0 | 28.0 | 68 | 39.0 | 95 | 20.0 | 49 |
| | MAY-SEP | 51.0 | 35.0 | 69 | 47.0 | 92 | 25.0 | 49 |
| YELLOWSTONE RIVER at Billings 2 | MAY-JUL | 3480.0 | 1980.0 | 57 | 2890.0 | 83 | 1640.0 | 47 |
| | MAY-SEP | 4160.0 | 2660.0 | 64 | 3450.0 | 83 | 1950.0 | 47 |
| BIGHORN RIVER at St. Xavier 2 | MAY-JUL | 1580.0 | 1110.0 | 70 | 1750.0 | 111 | 740.0 | 47 |
| | MAY-SEP | 1790.0 | 1290.0 | 72 | 1990.0 | 111 | 840.0 | 47 |
| LITTLE BIGHORN RIVER near Hardin | MAY-JUL | 125.0 | 84.0 | 67 | 142.0 | 114 | 38.0 | 30 |
| | MAY-SEP | 144.0 | 100.0 | 69 | 165.0 | 115 | 45.0 | 31 |
| TONGUE RIVER at Decker | MAY-JUL | 210.0 | 147.0 | 70 | 275.0 | 131 | 67.0 | 32 |
| | MAY-SEP | 235.0 | 170.0 | 72 | 310.0 | 132 | 75.0 | 32 |
| YELLOWSTONE RIVER at Miles City 2 | MAY-JUL | 5150.0 | 3350.0 | 65 | 4890.0 | 95 | 2320.0 | 45 |
| | MAY-SEP | 6020.0 | 4010.0 | 67 | 5720.0 | 95 | 2710.0 | 45 |
| POWDER RIVER at Moorehead | MAY-JUL | 204.0 | 136.0 | 67 | 300.0 | 147 | 55.0 | 27 |
| | MAY-SEP | 218.0 | 150.0 | 69 | 320.0 | 147 | 59.0 | 27 |
| YELLOWSTONE RIVER near Sidney 2 | MAY-JUL | 5700.0 | 3540.0 | 62 | 5470.0 | 96 | 2340.0 | 41 |
| | MAY-SEP | 6640.0 | 4250.0 | 64 | 6370.0 | 96 | 2720.0 | 41 |

RESERVOIR STORAGE

(1000AF)

WATERSHED SNOWPACK ANALYSIS

| RESERVOIR | USEABLE CAPACITY | THIS YEAR | ** USEABLE STORAGE ** LAST YEAR | AVG. | WATERSHED | NO. COURSES AVG'O | THIS YEAR AS % OF LAST YR. | % OF AVERAGE |
|--------------|------------------|-----------|------------------------------------|-------|---------------------------|----------------------|-------------------------------|-----------------|
| MYSTIC LAKE | 21.0 | 2.6 | 1.1 | 2.0 | YELLOWSTONE ab LIVINGSTON | 22 | 37 | 38 |
| COONEY | 27.4 | 24.4 | 24.5 | 18.6 | SHIELOS | 10 | 21 | 11 |
| BIGHORN LAKE | 1356.0 | 793.2 | 709.1 | 681.2 | BOULOER-STILLWATER | 9 | 58 | 48 |
| TONGUE RIVER | 68.0 | 45.6 | 28.3 | 36.7 | CLARK'S FORK-ROCK CREEK | 22 | 42 | 43 |
| | | | | | YELLOWSTONE above BIGHORN | 49 | 41 | 35 |
| | | | | | LITTLE BIGHORN | 5 | 46 | 48 |
| | | | | | WIND RIVER (Wyoming) | 31 | 35 | 53 |
| | | | | | BIGHORN RIVER (Wyoming) | 34 | 41 | 47 |
| | | | | | BIGHORN BASIN (Total) | 60 | 39 | 48 |
| | | | | | TONGUE RIVER (Wyoming) | 15 | 38 | 43 |
| | | | | | POWDER RIVER (Wyoming) | 15 | 31 | 34 |
| | | | | | YELLOWSTONE RIVER | 119 | 39 | 40 |

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

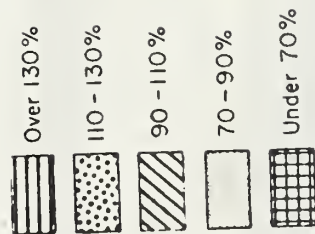
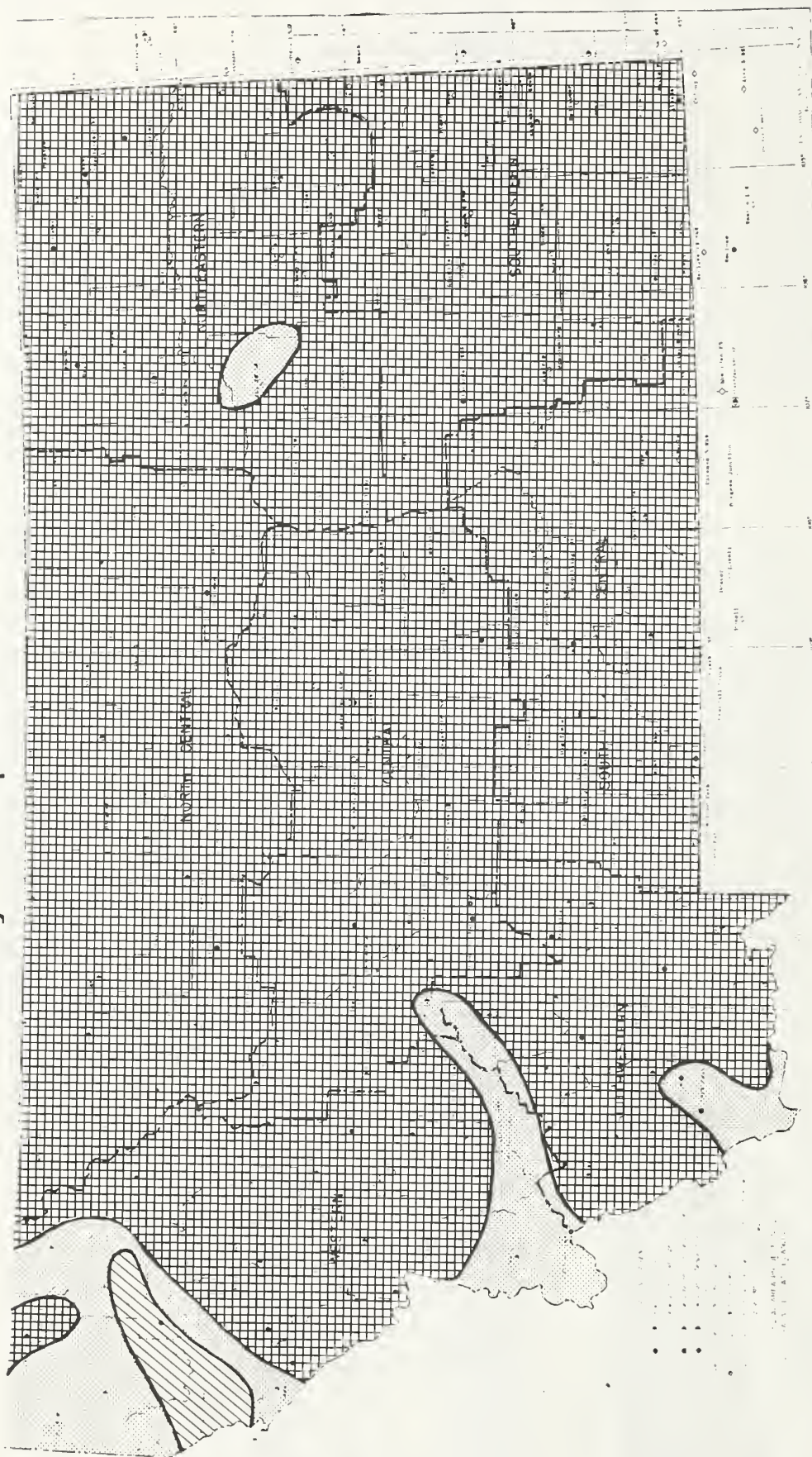
The average is computed for the 1961-85 base period.

Snow Data Measurements

| SNOW COURSE | ELEVATION | DATE | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1961-85 | SNOW COURSE | ELEVATION | DATE | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1961-85 |
|----------------------|-----------|---------|------------|---------------|-----------|-----------------|----------------------|-----------|---------|------------|---------------|-----------|-----------------|
| MONTANA | | | | | | | COPPER CREEK | 5700 | 4/26/87 | 0 | .0 | .0 | 10.1 |
| ABUNDANCE LAKE | 8800 | 4/25/87 | 36 | 11.4 | 22.0 | 23.8 | COPPER MOUNTAIN | 7700 | 4/27/87 | 3 | .7 | 8.5 | 11.8 |
| AMBROSE | 6480 | 4/28/87 | 1 | .1 | 9.3 | 13.7 | COTTONWOOD CREEK | 6400 | 4/27/87 | 0 | .0 | 7.0 | 8.4 |
| ARCH FALLS | 7350 | 4/29/87 | 8 | 2.6 | 9.6 | 15.0 | COYOTE HILL | 4200 | 4/30/87 | 0 | .0 | -- | 3.3 |
| ASHLEY DIVIDE | 4820 | 4/26/87 | 0 | .0 | -- | 1.4 | CRYSTAL LAKE | 6050 | 4/29/87 | 0 | .0 | 3.0 | 12.9 |
| BADGER PASS PILLOW | 6900 | 5/01/87 | --- | 23.4 | 33.5 | 39.0 | CRYSTAL LAKE PILLOW | 6050 | 5/01/87 | --- | .0 | 2.3 | 12.5 |
| BADGER PASS | 6900 | 4/26/87 | 68 | 29.9 | 36.8 | 42.5 | DAD CREEK LAKE | 8400 | 4/26/87 | 36 | 11.8 | 18.0 | 17.2 |
| BALD EAGLE PEAK | 5700 | 5/04/87 | 104 | 43.7 | 44.5 | 63.0 | DAISY PEAK | 7600 | 4/30/87 | 0 | .0 | 7.8 | 10.2 |
| BALD RIDGE | 7500 | 4/28/87 | 0 | .0 | 6.8 | 13.3 | DALY CREEK | 5780 | 4/29/87 | 8 | 2.8 | 11.0 | 12.4 |
| BANFIELD MTN PILLOW | 5600 | 5/04/87 | --- | 9.0 | 13.7 | 18.6 | DALY CREEK PILLOW | 5780 | 5/01/87 | --- | .0 | 2.7 | 6.0 |
| BANFIELD MOUNTAIN | 5600 | 5/04/87 | 18 | 9.0 | 12.3 | 22.4 | DARKHORSE LK. PILLOW | 8700 | 5/01/87 | --- | 13.5 | 30.6 | 27.9 |
| BARRE CREEK | 5500 | 4/29/87 | 52 | 26.1 | 25.3 | 45.6 | DARKHORSE LAKE | 8600 | 4/25/87 | 37 | 12.6 | 30.8 | 30.1 |
| BARRE MIDWAY | 4600 | 4/30/87 | 27 | 12.4 | 13.5 | 31.8 | DAVIS CREEK | 5400 | 5/04/87 | 0 | .0 | 13.4 | 22.3 |
| BARRE TRAIL | 3800 | 4/30/87 | 0 | .0 | .0 | 1.5 | DEADMAN CR PILLOW | 6450 | 5/01/87 | --- | .0 | .2 | 6.9 |
| BARKER LAKES PILLOW | 8250 | 5/01/87 | --- | 8.5 | 17.1 | 17.0 | DEADMAN CREEK | 6450 | 5/01/87 | 0 | .0 | 1.0 | 8.7 |
| BASIN CREEK | 7180 | 4/29/87 | 0 | .0 | 9.7 | 10.3 | DESERT MOUNTAIN | 5600 | 5/04/87 | 0 | .0 | 5.2 | 14.3 |
| BASIN CREEK PILLOW | 7180 | 5/01/87 | --- | 5.9 | 8.4 | 9.9 | DEVILS SLIDE | 8100 | 4/29/87 | 34 | 12.8 | 20.7 | 27.1 |
| BASSO0 PEAK | 5150 | 4/28/87 | 0 | .0 | .0 | 6.8 | DISCOVERY BASIN | 7050 | 4/29/87 | 0 | .0 | 8.8 | 11.0 |
| BEAGLE SPRINGS | 8850 | 4/26/87 | 14 | 4.2 | 10.6 | 9.6 | DIVIDE | 7800 | 4/26/87 | 6 | 1.6 | 8.1 | 11.4 |
| BEAGLE SPGS PILLOW | 8850 | 5/01/87 | --- | 1.2 | 10.9 | 9.0 | DIVIDE PILLOW | 7800 | 5/01/87 | --- | 4.5 | 12.6 | 12.8 |
| BEAR BASIN | 8150 | 4/28/87 | 17 | 6.8 | 15.4 | 23.4 | DIX HILL | 6400 | 4/26/87 | 0 | .0 | 1.0 | 5.4 |
| BEAR PAW SKI AREA | 5200 | 4/25/87 | 0 | .0 | .0 | 4.2 | DUPUYER CREEK PILLOW | 5750 | 5/01/87 | --- | .1 | 1.0 | 10.7 |
| BEAVER CREEK PILLOW | 7850 | 5/01/87 | --- | 6.4 | 22.1 | 21.8 | EAST BOULDER S | 9250 | 4/28/87 | 34 | 13.5 | 31.0 | 34.5 |
| BIG CREEK | 6750 | 4/29/87 | 69 | 34.2 | 51.4 | 51.2 | EAST FORK R.S. | 5400 | 4/28/87 | 0 | .0 | .0 | 1.2 |
| BIG SKY | 7700 | 4/28/87 | 7 | 2.6 | 12.6 | 17.7 | ELK HORN SPRINGS | 7800 | 4/25/87 | 0 | .0 | 7.0 | 8.6 |
| BIG SKY MEADOW | 6350 | 4/28/87 | 0 | .0 | .3 | 3.9 | ELK PEAK | 8000 | 4/30/87 | 13 | 5.4 | 17.2 | 20.0 |
| BIG SNOWY | 7150 | 4/29/87 | 31 | 11.4 | 21.2 | 25.3 | EMERY CREEK | 4350 | 5/04/87 | 0 | .0 | 1.6 | 9.7 |
| BLACK BEAR | 7950 | 4/29/87 | 26 | 9.8 | 51.0 | 44.2 | EMERY CREEK PILLOW | 4350 | 5/01/87 | --- | .2 | 4.0 | 8.5 |
| BLACK BEAR PILLOW | 7950 | 5/01/87 | --- | 9.9 | 47.3 | 39.1 | FATTY CREEK | 5500 | 4/30/87 | 26 | 12.6 | 13.0 | 24.8 |
| BLACK MOUNTAIN | 7750 | 4/27/87 | 22 | 7.6 | 15.6 | 18.1 | FISH CREEK | 8000 | 4/29/87 | 0 | .0 | 12.6 | 13.4 |
| BLACK PINE PILLOW | 7100 | 5/01/87 | --- | .1 | 10.0 | 14.8 | FISHER CREEK PILLOW | 9100 | 5/01/87 | --- | 20.3 | 40.1 | 39.5 |
| BLACK PINE | 7100 | 4/29/87 | 0 | .0 | 7.0 | 13.9 | FISHER CREEK | 9100 | 4/30/87 | 48 | 19.7 | 43.6 | 42.8 |
| BLACKTAIL | 5650 | 4/28/87 | 3 | .9 | -- | -- | FIVE-BULL | 5700 | 4/26/87 | 0 | .0 | -- | 3.8 |
| BLOODY DICK PILLOW | 7550 | 5/01/87 | --- | .1 | 10.9 | 10.0 | FLATTOP MTN PILLOW | 6300 | 5/01/87 | --- | 35.9 | 38.5 | 49.2 |
| BLOODY DICK | 7600 | 4/25/87 | 11 | 3.0 | 11.0 | 13.7 | FLEECER RIDGE | 7500 | 4/29/87 | 0 | .0 | 4.6 | 9.5 |
| BLUE LAKE | 5900 | 4/26/87 | 32 | 14.8 | 16.0 | 24.4 | FOOLHEN | 8280 | 4/25/87 | 28 | 8.8 | 17.5 | 19.3 |
| BOTS SOTS | 7750 | 4/27/87 | 2 | .8 | 4.7 | 9.3 | FOUR MILE | 6900 | 5/01/87 | 0 | .0 | 3.0 | 8.1 |
| BOULDER MOUNTAIN | 7950 | 4/27/87 | 28 | 11.0 | 21.7 | 22.7 | FOURTH OF JULY | 3450 | 4/30/87 | 0 | .0 | .0 | 1.2 |
| BOULDER MTN PILLOW | 7950 | 5/01/87 | --- | 5.6 | 21.0 | 22.6 | FRED BURR PASS | 8000 | 5/01/87 | 32 | 12.6 | 29.0 | 29.4 |
| BOX CANYON | 6670 | 4/27/87 | 0 | .0 | .0 | 7.5 | FREIGHT CREEK | 6000 | 4/26/87 | 18 | 6.8 | 10.0 | 14.2 |
| BOX CANYON PILLOW | 6700 | 5/01/87 | --- | .0 | .6 | 5.1 | FRIDAY HILL | 4620 | 4/30/87 | 0 | .0 | .0 | 12.0 |
| BOXELDER CREEK | 5100 | 4/25/87 | 5 | 1.4 | .0 | 2.2 | FROHNER MEADOWS | 6480 | 4/29/87 | 0 | .0 | .4 | 6.1 |
| BRANHAM LAKES | 8850 | 4/28/87 | 45 | 18.2 | 30.4 | 35.1 | FROHNER MOWS PILLOW | 6480 | 5/01/87 | --- | .2 | 6.1 | 9.0 |
| BRIDGER BOWL PILLOW | 7250 | 4/30/87 | --- | 3.5 | 16.7 | 29.7 | GARVER CREEK PILLOW | 4250 | 5/04/87 | --- | .0 | .5 | 4.0 |
| BRIDGER BOWL | 7250 | 4/30/87 | 8 | 2.9 | 17.8 | 31.3 | GARVER CREEK | 4250 | 5/04/87 | 0 | .0 | .0 | 4.7 |
| BRISTOW CREEK | 3900 | 5/04/87 | 0 | .0 | .0 | 1.6 | GIBBONS PASS | 7100 | 4/28/87 | 15 | 5.8 | 18.9 | 23.9 |
| BRUSH CREEK TIMBER | 5000 | 4/30/87 | 0 | .0 | .6 | 7.0 | GOAT MOUNTAIN | 7000 | 4/29/87 | 4 | 1.0 | 2.5 | 9.5 |
| BULL MOUNTAIN | 6600 | 4/29/87 | 0 | .0 | .0 | 3.7 | GOLD STONE | 8100 | 4/25/87 | 24 | 7.9 | 17.6 | 19.2 |
| CABIN CREEK | 5200 | 4/26/87 | 0 | .0 | .0 | 2.2 | GRASSHOPPER | 7000 | 4/30/87 | 0 | .0 | .6 | 5.3 |
| CALL ROAD | 8050 | 4/26/87 | 17 | 4.9 | 10.4 | 13.9 | GRAVE CRK PILLOW | 4300 | 5/01/87 | --- | .0 | .2 | 8.5 |
| CALVERT CREEK | 6430 | 4/29/87 | 0 | .0 | 9.1 | 9.6 | GRAVE CREEK | 4300 | 5/04/87 | 0 | .0 | .0 | 14.1 |
| CALVERT CR PILLOW | 6430 | 5/01/87 | --- | .0 | .0 | 2.5 | GRIFFIN CR DIVIDE | 5150 | 4/28/87 | 2 | .6 | 1.4 | 7.3 |
| CAMP MISERY | 6400 | 5/04/87 | 69 | 31.3 | 35.9 | 53.9 | GUNSIGHT LAKE | 6300 | 4/30/87 | 50 | 24.5 | 37.5 | 42.2 |
| CAMP SEMIA | 7890 | 4/27/87 | 9 | 2.4 | 5.4 | 9.2 | HAND CREEK | 5030 | 4/30/87 | 4 | 1.2 | 8.0 | 10.1 |
| CARROT BASIN PILLOW | 9000 | 5/01/87 | --- | 14.5 | 34.0 | 32.1 | HAND CREEK PILLOW | 5030 | 5/01/87 | --- | 1.7 | 8.5 | 9.1 |
| CARROT BASIN | 9000 | 4/27/87 | 40 | 16.1 | 33.0 | 41.7 | HAWKINS LAKE PILLOW | 6450 | 5/04/87 | --- | 19.6 | 30.9 | 30.1 |
| CASHE CREEK PILLOW | 7800 | 5/01/87 | --- | 2.4 | 8.8 | 10.5 | HAWKINS LAKE | 6450 | 5/04/87 | 45 | 21.4 | 28.5 | 32.8 |
| CEDAR GROVE | 3760 | 5/04/87 | 0 | .0 | .0 | 6.1 | HEART LAKE TRAIL | 4800 | 5/01/87 | 6 | 2.7 | 11.2 | 17.4 |
| CHESSMAN RESERVOIR | 6200 | 4/29/87 | 0 | .0 | .2 | 2.7 | HEBGEN DAM | 6550 | 5/01/87 | 0 | .0 | 5.0 | 7.6 |
| CHICKEN CREEK | 4060 | 4/28/87 | 0 | .0 | .0 | 3.8 | HELL ROARING DIVIDE | 5770 | 5/01/87 | 44 | 18.4 | 21.4 | 31.6 |
| CLOVER MOW PILLOW | 8800 | 5/01/87 | --- | 7.1 | 19.5 | 19.0 | HERRIG JUNCTION | 4850 | 4/28/87 | 33 | 14.4 | 11.8 | 25.0 |
| CLOVER MEADOW | 8600 | 4/26/87 | 22 | 6.8 | 17.8 | 20.6 | HOLBROOK | 4530 | 4/22/87 | 0 | .0 | .0 | 2.0 |
| COLE CREEK | 7850 | 4/27/87 | 44 | 16.0 | 21.0 | 23.3 | HOOD MEADOW | 6600 | 4/29/87 | 1 | .4 | 3.1 | 11.4 |
| COLE CREEK PILLOW | 7850 | 5/01/87 | --- | 13.2 | 20.8 | 20.6 | HOODOO BASIN PILLOW | 6050 | 5/01/87 | --- | 29.0 | 40.1 | 49.6 |
| COLLEY CREEK | 6300 | 4/29/87 | 0 | .0 | 1.2 | 4.2 | HOODOO BASIN | 6050 | 5/01/87 | 63 | 31.1 | 45.9 | 53.2 |
| COMBINATION | 5600 | 4/29/87 | 0 | .0 | .0 | 3.5 | HOODOO CREEK | 5900 | 5/01/87 | 54 | 27.2 | 36.8 | 49.3 |
| COMBINATION PILLOW | 5600 | 5/01/87 | --- | .0 | .0 | 2.1 | ICEBERG LAKE MO 3 | 5600 | 4/29/87 | 35 | 16.1 | 14.0 | 31.0 |
| COOKE STATION | 8150 | 4/30/87 | 21 | 5.9 | 22.2 | 21.4 | INDEPENDENCE | 7850 | 4/27/87 | 17 | 5.8 | 12.6 | 18.2 |
| COPPER BOTTOM | 5200 | 4/26/87 | 0 | .0 | .0 | 4.9 | INTERGAARD | 6450 | 4/28/87 | 1 | .1 | 6.7 | 8.0 |
| COPPER BOTTOM PILLOW | 5200 | 5/01/87 | --- | .0 | 1.2 | 6.8 | JAHNKE LAKE TRAIL | 7200 | 4/25/87 | 0 | .0 | 8.6 | 9.2 |
| COPPER CAMP PILLOW | 6950 | 5/01/87 | --- | 8.6 | 25.4 | 33.5 | JOHNSON PARK | 6450 | 4/30/87 | 0 | .0 | .0 | 2.6 |
| COPPER CAMP | 6950 | 4/26/87 | 31 | 13.5 | 23.0 | 30.6 | JOSEPHINE LOWER NO 9 | 4900 | 4/28/87 | 10 | 4.2 | 3.0 | 16.5 |

| SNOW COURSE | ELEVATION | DATE | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1961-85 | SNOW COURSE | ELEVATION | DATE | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1961-85 |
|----------------------|-----------|---------|------------|---------------|-----------|-----------------|----------------------|-----------|---------|------------|---------------|-----------|-----------------|
| KEELER CREEK | 3300 | 5/04/87 | 0 | .0 | .0 | 1.2 | PORCUPINE PILLON | 6500 | 5/01/87 | --- | .0 | .4 | 4.4 |
| KINGS HILL | 7500 | 5/01/87 | 2 | .9 | 15.3 | 16.1 | PORCUPINE | 6500 | 4/28/87 | 0 | .0 | 2.0 | 7.4 |
| KIWANIS CAMP | 3720 | 4/25/87 | 0 | .0 | .0 | .3 | POTOMAGETON PARK | 7150 | 5/01/87 | 0 | .0 | 7.6 | 10.7 |
| KRAFT CREEK PILLON | 4750 | 5/01/87 | --- | .0 | .0 | 4.0 | PTARMIGAN | 5800 | 4/29/87 | 52 | 25.5 | 22.4 | 37.9 |
| LAKE CREEK | 6100 | 4/26/87 | 0 | .0 | .1 | 3.6 | RED MOUNTAIN | 6000 | 4/28/87 | 22 | 8.5 | 10.0 | 18.6 |
| LAKEVIEW CANYON | 6930 | 4/24/87 | 14 | 4.2 | 9.0 | 12.3 | RED TOP | 5260 | 4/30/87 | 20 | 7.5 | 18.0 | 29.6 |
| LAKEVIEW RGE, PILLON | 7400 | 5/01/87 | --- | .0 | 9.5 | 9.6 | ROCK CREEK | 5600 | 4/29/87 | 0 | .0 | .0 | 6.2 |
| LAKEVIEW RIDGE | 7400 | 4/24/87 | 11 | 2.9 | 6.5 | 10.3 | ROCK CREEK MEADOW | 8160 | 4/29/87 | 34 | 10.6 | 21.6 | 24.7 |
| LEHMI PASS | 7480 | 4/26/87 | 3 | .8 | 7.5 | 7.2 | ROCKER PEAK | 8000 | 4/29/87 | 11 | 4.2 | 13.6 | 17.0 |
| LEHMI RIDGE | 8100 | 4/26/87 | 10 | 2.8 | 11.8 | 10.0 | ROCKER PEAK PILLON | 8000 | 5/01/87 | --- | 11.8 | 20.1 | 18.5 |
| LEHMI RIDGE PILLON | 8100 | 5/01/87 | --- | .8 | 13.0 | 10.5 | ROCKY BOY | 4700 | 4/25/87 | 0 | .0 | .0 | 1.7 |
| LICK CREEK PILLON | 6860 | 5/01/87 | --- | .0 | 4.1 | 8.6 | ROCKY BOY PILLON | 4700 | 4/25/87 | 0 | .0 | .0 | 2.9 |
| LICK CREEK | 6860 | 4/29/87 | 6 | 2.4 | 7.3 | 10.3 | SACAJAWEA | 6550 | 4/30/87 | 0 | .0 | 2.2 | 14.3 |
| LITTLE PARK | 7400 | 4/28/87 | 14 | 4.6 | 11.4 | 17.8 | SADDLE MTN PILLON | 7900 | 5/01/87 | --- | 8.8 | 25.3 | 29.1 |
| LOGAN CREEK | 4300 | 4/30/87 | 0 | .0 | .0 | 2.5 | SADDLE MOUNTAIN | 7940 | 4/28/87 | 32 | 12.5 | 24.9 | 28.6 |
| LONE MOUNTAIN | 8880 | 4/28/87 | 18 | 6.5 | 23.6 | 26.7 | SENTINEL CREEK | 8300 | 5/01/87 | 12 | 4.0 | 25.3 | 26.0 |
| LOST HORSE | 5940 | 4/30/87 | 31 | 14.6 | 25.5 | 33.9 | SHORT CREEK | 7000 | 4/23/87 | 1 | .1 | -- | -- |
| LOST SOUL | 4800 | 5/04/87 | 0 | .0 | .0 | 8.8 | SHOWER FALLS | 8100 | 4/29/87 | 36 | 13.9 | 23.9 | 29.0 |
| LOWER TWIN PILLON | 7900 | 5/01/87 | --- | 11.6 | 21.1 | 22.7 | SHOWER FALLS PILLON | 8100 | 5/01/87 | --- | 12.6 | 25.8 | 29.5 |
| LOWER TWIN | 7900 | 5/01/87 | 19 | 8.2 | 21.3 | 25.2 | SILVER RUN | 6630 | 4/27/87 | 0 | .0 | .0 | 3.8 |
| LUEBECHT FLUME | 4680 | 5/01/87 | 0 | .0 | .0 | .6 | SILVER RUN PILLON | 6630 | 5/01/87 | --- | .0 | .1 | 1.4 |
| LUEBECHT PILLON | 4680 | 5/01/87 | --- | .0 | .3 | .4 | SKALKAHO PILLON | 7260 | 5/01/87 | --- | 12.6 | 25.0 | 25.6 |
| LUEBECHT FOREST NO 3 | 5450 | 5/01/87 | 0 | .0 | .0 | 3.6 | SKALKAHO SUMMIT | 7250 | 4/29/87 | 27 | 10.7 | 23.2 | 27.6 |
| LUEBECHT FOREST NO 4 | 4650 | 5/01/87 | 0 | .0 | .0 | .2 | SKYLARK TRAIL PILLON | 6200 | 5/01/87 | --- | 10.8 | 24.2 | 34.0 |
| LUEBECHT FOREST NO 6 | 4040 | 5/01/87 | 0 | .0 | .0 | .1 | SLAG-A-MELT LAKE | 8750 | 4/25/87 | 32 | 11.1 | 28.8 | 29.0 |
| LUEBECHT HYDRO PLOT | 4200 | 5/01/87 | 0 | .0 | .0 | .3 | SLIDE ROCK MOUNTAIN | 7100 | 4/28/87 | 17 | 5.7 | 12.0 | 18.5 |
| MADISON PLT PILLON | 7750 | 4/29/87 | --- | 7.4 | -- | 24.3 | SMUGGLER MINE | 6960 | 4/28/87 | 2 | .6 | 6.1 | 9.9 |
| MADISON PLATEAU | 7750 | 4/29/87 | 7 | 2.5 | 26.5 | 23.2 | S.F. SHIELDS PILLON | 8100 | 5/01/87 | --- | 3.5 | 17.2 | 21.5 |
| MANY GLACIER | 4900 | 5/01/87 | 0 | .0 | 2.6 | 12.2 | S.F. SHIELDS | 8100 | 4/28/87 | 30 | 10.2 | 24.0 | 29.0 |
| MANY GLACIER PILLON | 4900 | 5/01/87 | --- | .0 | .0 | 8.6 | SPOTTED BEAR MTN. | 7000 | 4/30/87 | 0 | .0 | 10.0 | 10.4 |
| MARIAS PASS | 5250 | 4/28/87 | 12 | 5.2 | 1.1 | 16.0 | SPUR PARK PILLON | 8100 | 5/01/87 | --- | 8.7 | 25.7 | 24.2 |
| MAYNARD CREEK | 6210 | 4/30/87 | 0 | .0 | 6.2 | 17.0 | SPUR PARK | 8100 | 5/01/87 | 10 | 4.0 | 22.0 | 24.1 |
| MAYNARD CR PILLON | 6210 | 4/30/87 | --- | .0 | 4.7 | 13.1 | STAHL PEAK | 6030 | 5/04/87 | 75 | 36.2 | 33.8 | 44.2 |
| MIDDLE MILL CREEK | 7850 | 4/28/87 | 7 | 2.6 | 9.9 | 18.2 | STAHL PEAK PILLON | 6030 | 5/01/87 | --- | 34.9 | 33.7 | 41.2 |
| MILL CREEK | 7500 | 4/29/87 | 0 | .0 | 5.1 | 12.3 | STAR LAKE E | 9650 | 4/28/87 | 52 | 21.5 | 44.0 | 47.7 |
| MINERAL CREEK | 4000 | 4/30/87 | 0 | .0 | 1.2 | 12.3 | STEMPLE PASS | 6600 | 4/28/87 | 9 | 3.0 | 6.8 | 11.1 |
| MONUMENT PK PILLON | 8850 | 5/01/87 | --- | 11.5 | 26.0 | 24.6 | STORM LAKE | 7780 | 5/04/87 | 4 | 1.5 | 15.3 | 16.1 |
| MONUMENT PEAK | 8850 | 4/27/87 | 46 | 15.7 | 29.2 | 30.0 | STRYKER BASIN | 6180 | 4/28/87 | 66 | 29.9 | 25.4 | 37.1 |
| MOSS PEAK | 6780 | 4/29/87 | 68 | 32.6 | -- | -- | STUART MILL | 6500 | 4/28/87 | 0 | .0 | .7 | -- |
| MOSS PEAK PILLON | 6780 | 5/01/87 | --- | 29.0 | 40.0 | 48.1 | STUART MOUNTAIN | 7400 | 4/30/87 | 35 | 16.1 | 30.2 | 33.9 |
| MOULTON RESERVOIR | 6850 | 4/27/87 | 0 | .0 | 1.4 | 3.1 | SUCKER CREEK | 3960 | 4/25/87 | 0 | .0 | .0 | .4 |
| MOUNT ALLEN NO 7 | 5700 | 4/28/87 | 68 | 31.4 | 25.6 | 46.1 | TAYLOR ROAD | 4080 | 4/25/87 | 0 | .0 | .0 | .7 |
| MT LOCKHART PILLON | 6400 | 5/01/87 | --- | 12.0 | 20.0 | 23.0 | TEN MILE LOWER | 6600 | 4/28/87 | 0 | .0 | .2 | 6.2 |
| MOUNT LOCKHART | 6400 | 5/01/87 | 23 | 9.4 | 18.6 | 22.8 | TEN MILE MIDDLE | 6800 | 4/28/87 | 14 | 4.3 | 8.8 | 13.2 |
| MUO LAKE | 7650 | 4/30/87 | 14 | 4.8 | 18.6 | 20.4 | TEN MILE UPPER | 8000 | 4/28/87 | 15 | 4.5 | 11.4 | 16.1 |
| MULE CREEK | 8300 | 4/29/87 | 22 | 7.8 | 17.2 | 16.0 | TEPEE CREEK PILLON | 8000 | 5/01/87 | --- | 3.3 | 15.9 | 14.7 |
| MULE CREEK PILLON | 8300 | 5/01/87 | --- | 9.6 | 10.2 | 16.2 | TEPEE CREEK | 8000 | 4/26/87 | 25 | 7.8 | 16.3 | 17.6 |
| NEVADA CREEK | 6480 | 4/26/87 | 6 | 2.4 | 5.4 | 12.4 | TIMBERLINE CREEK | 8850 | 4/27/87 | 34 | 10.0 | 17.4 | 18.7 |
| NEVADA CREEK PILLON | 6480 | 5/01/87 | --- | 4.0 | 6.0 | 13.6 | TIZER BASIN | 6840 | 4/30/87 | 0 | .0 | -- | -- |
| NEWTON MOUNTAIN | 5600 | 4/30/87 | 46 | 18.3 | 18.7 | 36.8 | TRAIL CREEK | 7090 | 4/26/87 | 0 | .0 | 6.8 | 7.5 |
| NEZ PERCE CMP PILLON | 5650 | 5/01/87 | --- | 1.8 | 10.5 | 10.6 | TRINUS LAKE | 6100 | 4/30/87 | 42 | 20.6 | 34.6 | 45.2 |
| NEZ PERCE CAMP | 5650 | 4/28/87 | 2 | 1.0 | 8.9 | 12.7 | TRUMAN CREEK | 4060 | 4/27/87 | 0 | .0 | -- | .7 |
| NEZ PERCE CREEK | 6600 | 4/27/87 | 0 | .0 | .2 | 4.3 | TV MOUNTAIN | 6800 | 4/30/87 | 10 | 3.8 | 16.8 | 20.0 |
| NEZ PERCE PASS | 6570 | 4/28/87 | 0 | .0 | 7.8 | 15.5 | TWELVE MILE PILLON | 5600 | 5/01/87 | --- | .0 | 2.4 | 13.2 |
| NOISY BASIN | 6040 | 5/04/87 | 65 | 30.0 | 33.2 | 52.5 | TWELVE MILE CREEK | 5600 | 4/30/87 | 0 | .0 | 4.3 | 16.0 |
| NOISY BASIN PILLON | 6040 | 5/01/87 | --- | 26.3 | 38.6 | 46.7 | TWENTY-ONE MILE | 7150 | 4/29/87 | 0 | .0 | 13.2 | 16.3 |
| N.F. ELK CR PILLON | 6250 | 5/01/87 | --- | .0 | 6.2 | 10.2 | TWIN CREEKS | 3580 | 4/30/87 | 0 | .0 | -- | 2.3 |
| N.F. ELK CREEK | 6250 | 5/04/87 | 0 | .0 | 7.2 | 10.1 | TWIN LAKES PILLON | 6400 | 5/01/87 | --- | 22.3 | 31.0 | 42.6 |
| NORTH FORK JOCKO | 6330 | 4/29/87 | 43 | 21.1 | 40.3 | 46.6 | TWIN LAKES | 6510 | 4/30/87 | 48 | 23.8 | 33.8 | 45.2 |
| NORTH MEADOW | 7500 | 5/01/87 | 0 | .0 | 6.6 | 10.6 | UPPER HOLLAND LAKE | 6200 | 4/30/87 | 27 | 13.9 | 29.3 | 36.7 |
| N.E. ENTRANCE PILLON | 7350 | 5/01/87 | --- | .0 | 1.5 | 6.7 | WALDRON PILLON | 5600 | 5/01/87 | --- | .0 | .3 | 7.0 |
| NORTHEAST ENTRANCE | 7350 | 5/02/87 | 0 | .0 | 2.5 | 7.0 | WALORON | 5600 | 5/01/87 | 0 | .0 | .0 | 5.5 |
| NOTCH | 8500 | 4/26/87 | 30 | 9.3 | 14.7 | 20.0 | WARM SPRINGS | 7800 | 5/01/87 | 19 | 6.8 | 22.7 | 22.0 |
| OPHIR PARK | 7150 | 4/26/87 | 23 | 7.8 | 12.7 | 18.2 | WARM SPRINGS PILLON | 7800 | 5/01/87 | --- | 12.6 | 26.8 | 31.2 |
| PALISADE CREEK | 8250 | 4/30/87 | 28 | 11.2 | 32.4 | 32.8 | WEASEL DIVIDE | 5450 | 5/04/87 | 42 | 20.2 | 20.0 | 35.1 |
| PETERSON MOW PILLON | 7200 | 5/04/87 | --- | 2.2 | 12.4 | 12.1 | WEST YELL'ST PILLON | 6700 | 4/30/87 | --- | .0 | 3.5 | 6.2 |
| PETERSON MEADOWS | 7200 | 5/04/87 | 2 | .6 | 11.0 | 11.6 | WEST YELLOWSTONE | 6700 | 4/30/87 | 0 | .0 | 7.5 | 8.0 |
| PICKET PIN D | 9450 | 4/28/87 | 51 | 18.5 | 22.5 | 28.8 | WHISKEY CREEK PILLON | 6800 | 5/01/87 | --- | 2.9 | 19.7 | 15.7 |
| PICKFOOT CREEK | 6650 | 4/27/87 | 0 | .0 | 2.0 | 7.1 | WHISKEY CREEK | 6800 | 4/29/87 | 0 | .0 | 18.4 | 18.7 |
| PICKFOOT CRK PILLON | 6650 | 5/01/87 | --- | .0 | 1.6 | 6.7 | WHITE MILL PILLON | 8700 | 5/01/87 | --- | 12.9 | 31.1 | 27.9 |
| PIEGAN PASS NO 6 | 5500 | 4/28/87 | 51 | 24.0 | 18.9 | 39.6 | WHITE MILL | 8700 | 4/30/87 | 34 | 13.2 | 33.6 | 30.5 |
| PIKE CREEK PILLON | 5930 | 5/01/87 | --- | 13.1 | 19.6 | 26.8 | WHITE PINE RIDGE | 8850 | 4/26/87 | 10 | 2.6 | 5.6 | 6.4 |
| PIFESTONE PASS | 7200 | 4/27/87 | 2 | .9 | 1.6 | 5.7 | WILLOW CREEK | 6500 | 4/27/87 | 0 | .0 | 1.4 | 5.4 |
| PLACER BASIN F | 8830 | 4/28/87 | 28 | 13.5 | 18.0 | 23.4 | WOOD CREEK | 5960 | 4/26/87 | 0 | .0 | 5.2 | 7.5 |
| PLACER BASIN PILLON | 8830 | 5/01/87 | --- | 13.5 | 18.5 | 19.5 | WOOD CREEK PILLON | 5960 | 5/01/87 | --- | 1.2 | 5.6 | 9.2 |
| POORMAN CRK PILLON | 5100 | 5/04/87 | --- | 10.0 | 16.4 | 30.4 | WRONG CREEK | 5700 | 4/27/87 | 2 | .6 | 2.0 | 10.4 |
| POORMAN CREEK | 5100 | 5/04/87 | 22 | 10.7 | 15.8 | 32.0 | WRONG RIDGE | 6800 | 4/27/87 | 23 | 8.7 | 13.0 | 19.6 |

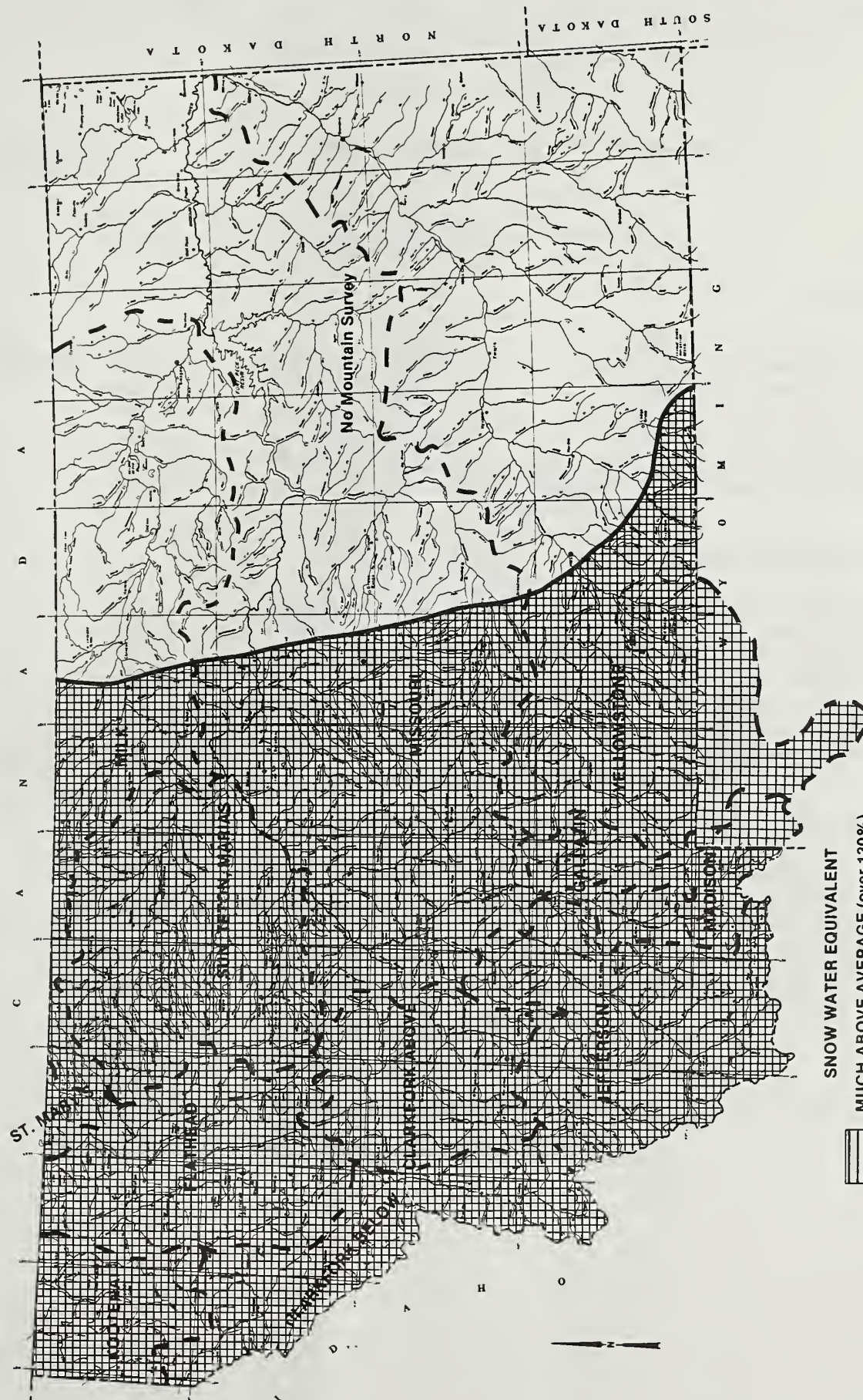
Valley Precipitation



APRIL 1987

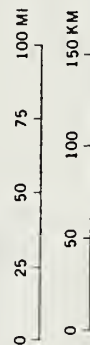
Source: NWS
Great Falls, MT

MOUNTAIN SNOWWATER EQUIVALENT FOR MONTANA



- SNOW WATER EQUIVALENT**
- MUCH ABOVE AVERAGE (over 130%)
 - ABOVE AVERAGE (110-130%)
 - NEAR AVERAGE (90-110%)
 - BELOW AVERAGE (70-90%)
 - MUCH BELOW AVERAGE (below 70%)
 - NO MOUNTAIN SURVEY
- % 1961-85 AVERAGE**

MAY 1, 1987



SOURCE:
Information provided
by SCS Snow Survey
Personnel

ESTIMATES OF PEAK SNOWMELT RUNOFF

| | <u>Peak Day Range in cfs</u> | <u>1961-85 Avg cfs</u> |
|--------------------------------------|----------------------------------|----------------------------|
| COLUMBIA RIVER | | |
| Blackfoot River near Bonner | 3,000 - 6,000 | 9,588 |
| Clark Fork River above Missoula | 5,500 - 11,000 | 16,738 |
| Bitterroot River near Darby | 2,500 - 4,500 | 6,229 |
| Clark Fork River below Missoula | 12,000 - 20,000 | 31,992 |
| Clark Fork River at St. Regis | 15,000 - 26,000 | 39,984 |
| N. Fk. Flathead near Columbia Falls | 11,000 - 17,500 | 21,189 |
| M. Fk. Flathead near West Glacier | 12,500 - 18,500 | 22,463 |
| MISSOURI RIVER DRAINAGE | | |
| Big Hole River near Melrose | 3,000 - 5,500 | 8,015 |
| Ruby River above Reservoir | 450 - 900 | 1,037 |
| Gallatin River near Gateway | 2,300 - 3,200 | 5,389 |
| Gallatin River near Logan | 1,400 - 3,000 | 5,581 |
| Missouri River at Toston | 6,000 - 14,000 | 19,042 |
| Marias River near Shelby | 3,000 - 6,000 | 11,516 |
| S. Fk. Musselshell above Martinsdale | 250 - 400 | 1,229 |
| YELLOWSTONE RIVER DRAINAGE | | |
| Yellowstone River at Corwin Springs | 7,000 - 12,000 | 17,532 |
| Yellowstone River at Livingston | 8,000 - 14,000 | 20,732 |
| Boulder River near Big Timber | 3,000 - 4,500 | 5,226 |
| Stillwater River near Absarokee | 3,000 - 5,500 | 6,601 |
| Clarks Fork River near Belfry | 4,500 - 7,000 | 7,706 |
| Yellowstone River at Billings | 18,000 - 31,000 | 42,716 |

The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

Canadian

Department of the Environment
Atmospheric Environment Service
Water Management Service
British Columbia Ministry of Environment
Inventory and Engineering Branch, Hydrology Section
Alberta Environment
Technical Services Division

Federal

U.S. Department of Agriculture
Forest Service
U.S. Department of the Army
Corps of Engineers
U.S. Department of Commerce
NOAA, National Weather Service
National Environmental Satellite Service
U.S. Department of the Interior
Bureau of Indian Affairs
Fish and Wildlife Service
Geological Survey
National Park Service
Bureau of Reclamation
U.S. Department of Energy
Bonneville Power Administration

State

Montana Conservation Districts
Montana Department of Fish, Wildlife, and Parks
Montana Department of Natural Resources and Conservation
Montana Department of State Lands
Montana State University - Agricultural Experiment Station
University of Montana - School of Forestry

Private

Big Sky of Montana
Butte Water Company
Confederated Salish & Kootenai Tribes
Flathead Valley Community College
Montana Power Company
Pondera County Canal & Reservoir Company

Other organizations and individuals furnish information for the snow survey reports.

Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

SNOW SURVEY UNIT

Federal Bldg., Rm. 443
10 East Babcock Street
Bozeman, MT 59716

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Montana
Water Supply Outlook

and

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Cooperative Snow Surveys



SOIL CONSERVATION SERVICE